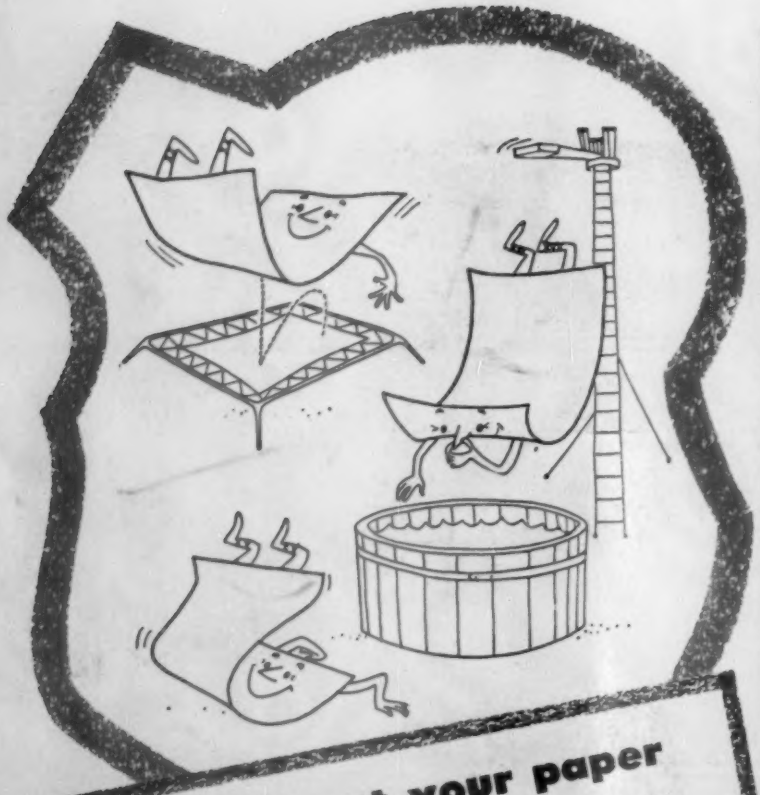
PULP & PAPER

APRIL 1955

Great Northern mill at East Millinocket pioneers new process
see page 74



You can put your paper through all sorts of tests with ALWAX* and WAXINE® Sizes

At latest count, papermakers were turning ALWAX and WAXINE Sizes into profit on more than 170 different paper products—from butcher's wrap to beaverboard, from cup paper to crate liner.

And no wonder. For they have their choice of 17 of these sizes to produce:

- higher liquid resistance
- improved pliability and folding
- smoother printing surfaces
- less tendency to curl
- better staining, brighter color
- high scuff resistance
- easier calender finishing

Every one of these 17 sizes will give top performance on your machines. And every one is backed by the skill and experience of Cyanamid Technical Service. We're ready to serve you today.

THE LARGEST VARIETY OF PAPER CHEMICALS, *to serve every industry need, is offered by Cyanamid, and is backed by the services of technical experts with years of practical mill experience.*

Recent Mill Developments with Cyanamid's Paper Chemicals...

High wet rub resistance is being obtained by a mill using PAREZ® Resin 613 in a starch-protein coating. One pound of 613 is used for each six pounds of coating solids—three pounds of starch and three of protein. Dry rub resistance results off the coater, and high wet rub resistance is attained after a quick heat treatment on the corrugators.

• • •

Dustless fortified rosin sizes are standard products because of a new process developed in Cyanamid's research laboratories. All CYFOR® Sizes are subjected to the anti-dusting process to permit more satisfactory handling in the mill. Write for a sample and compare CYFOR with your present size—CYFOR is less dusty than any other fortified size available.

• • •

Doubled efficiency with PAREZ Resin 607 is the result of a complete review of operating procedures in a western mill. It was found that over the years, changes in personnel had resulted in changed procedures. A Cyanamid serviceman, asked to review chemical usage, showed where original recommendations were no longer followed, suggested better plant housekeeping and closer adherence to supplier recommendations. Results—wet strength was doubled on the first run.

*Trade-mark

AMERICAN Cyanamid COMPANY
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30 Rockefeller Plaza, New York 20, N. Y.

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In back of your TV Set is a RICE BARTON papermaking machine!

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Rice Barton machines will make paper to meet your most exacting requirements.

RB4-55

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Worcester, Massachusetts

Paper Machine Builders Since 1837

West Coast Distributor: Ray Smythe ... 501 Park Building • Portland, Oregon

The superior quality of OK BRAND starches gives you improved tub, beater, and calender sizing. Better for coating and adhesives, too. When you make better paper at no extra cost — you've put more profit in your "paper work". Try OK BRAND and see! Discuss your special starch requirements with Hubinger's expert technicians.

the stamp of quality

OK BRAND

ESTABLISHED IN 1881
THE HUBINGER COMPANY
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Try these top-quality starches for paper makers:

- OK BRAND Pearl
- OK BRAND E-Type Pearl
- OK BRAND Pearl 700
- OK BRAND Pre-Jel
- OK BRAND Thin Boiling Starch
- OK BRAND Oxidized Starches

PULP & PAPER

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MILLER FREEMAN PUBLICATIONS

IN THIS ISSUE

PULP & PAPER

EDITORIAL PAGE

How Foreign Aid Is Decided

An industry executive recently had an opportunity to gain an unusual insight on a committee in Washington, D. C., which decides on aid to foreign countries. He was appalled by what he discovered. On the committee were representatives of the Foreign Operations Administration, of Defense, Agriculture and State Departments and other government agencies. But everyone of these men were already crusaders or converts to the cause of giving aid. They did not sit down to consider whether or not aid should be given. The only question still open in their minds was how much to give and to whom? There was not one voice raised in behalf of domestic aid or domestic interests.

The FOA, headed by Harold Stassen, will expire in June. But everyone who is familiar with the Washington scene fully expects foreign aid will continue, probably under the direction of the State Department.

Secretary Weeks has promised this industry a hearing on any aid measures that might create competitive industries abroad. It is obvious this industry, under the circumstances as they now exist, must be alert at all times, so that it is assured such a hearing.

The Fastest-Growing Industry

"I doubt if any other basic industry in the U.S.A. has increased the use of its product over a period of 55 years at the same rate as has the paper industry—from 2.25 to 32 million tons. But we need new ideas and products to keep up such a rate of growth."—Clark Everest, chairman, Marathon Corp.

Russia "Invents" Wet Strength

It is getting to be an old story . . . the claims made in Soviet Russia publications that Russians invented almost every modern appliance or process or product there is in the world. We thought they had covered about everything.

But, lo and behold, a story in a recent issue of *Pravda* now claims that some Russian comrades have invented wet strength paper!

Pravda says a paper impregnating technique "invented" in the Soviet Union "imparts wet strength to the paper" and describes it as a "combination of silicates and organic material."

And—believe it or not—it can be easily and cheaply produced!

Are Newspapers Dying?

The Minneapolis Tribune has syndicated a science series called "1999: Our Hopeful Future," in which its science writer, Victor Cohn, reports what many scientists have told him the future holds—like cord-less lamps, toasters, etc.; lawnmowers that run themselves, untended; electronic controls running stoves; inexpensive TV cameras, etc.

Editor & Publisher says Mr. Cohn was asked what will happen to newspapers.

He replied that in proportion to their size, newspapers and the publishing and printing industry are said to be among the smallest spenders for research. Prof. Samuel Caldwell of MIT, for example, said it has been difficult to even get small sums from many publishers for research on the new "photon typesetter."

Mr. Cohn, naturally, cheerfully forecasts newspapers will survive, but he concedes that "failure to advance technologically, when everybody else is advancing, means some degree of dying." This fact is known only too well to the pulp and paper industry.

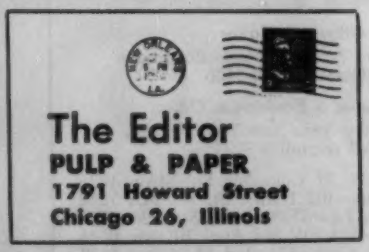
Paper Should NOT Be a "Secret Word"

On Groucho Marx's television show there's always a "secret word." If any contestant utters it, he gets a prize.

"A common word, something you see every day," is the way Groucho always describes it, to warn contestants they might accidentally come into some extra money.

So, naturally, on one of his shows the word was "paper." There's nothing more "common," statistics have shown, except water.

The sad ending to this is that no one won the prize. Must mean the public needs to be made more paper-minded, huh?



READERS CORNER

No anonymous letters will be considered but names may be withheld if desired.

Applying Supersonics to Cellulose

We would be very thankful for another copy of the Sept. 1950 issue of PULP & PAPER in which you had a small article on the application of ultrasonic waves for beating and refining. We are currently engaged in work on the application of supersonics to cellulose.

Prof. Dipl. Ing. K. ADAMIK
Head of Institute of Pulp & Paper Technology
Kopernikusgasse 24, Graz, Austria

Praise for Bowaters "Issue"

Congratulations on a very well written feature on the Bowaters Southern Paper Corp. mill at Calhoun, Tenn.

The article shows the results of the extra planning and research that went into its preparation.

Southern Sales Manager for
One of Leading Equipment Suppliers.

Best Coverage in the South

I enjoy reading your magazine. It covers our section of the country better than most trade publications.

J. A. WHALEN, Pulp Mill Superintendent
Rome Kraft Company, Rome, Georgia

Bauer

BAUER CLEANERS

remove more than soil and sand

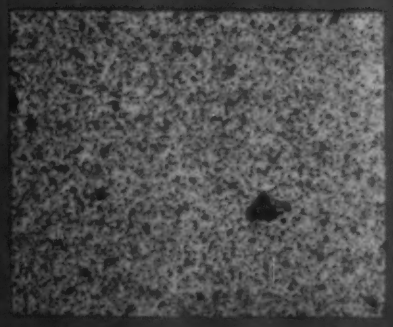
Since particles of high specific gravity naturally settle from water suspensions, their removal from pulp slurry is easy. But Bauer Cleaners recognize other kinds of debris in pulp—particles of different *shape* than fibers.

So the rejects from Bauer Cleaners are not only soil and sand, but also pieces of bark, shives, slivers, and miscellaneous refuse.

You can readily see these dregs in sheets made from Bauer Cleaner rejects. We'll be glad to show you a number of samples, as well as sheets made from accepted stock. The evidence is amazing.

Photograph shows a hand sheet made from Bauer Cleaner final rejects. Feels like sandpaper!

Ask to see samples. The coupon can be used.



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Show me sample sheets made from Bauer Cleaner rejects and accepted stock.

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(Individual and Title)

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(Company)

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(Street Address or Box)

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(City, Zone, State)

PULP & PAPER PERSONALS

MIDDLE WEST NEWS

Paper Man on Walker Team; Another Is Munising Mayor

JIM JACKSON, sales rep. in St. Louis for Chase Bag Co., Chicago, has been named to the much-publicized 9-man U.S. Walker Cup team which play in Scotland in May and at the Masters' tournament in Georgia in April. This is his second year on the noted golf team.

G. WALLACE MASTERS, technical dept., Munising, Mich., div. Kimberly-Clark, is the mayor of Munising.

DAVID B. GEARHART, paper industry specialist and apparatus division mgr. for General Electric in Michigan district, is moving into his newly built home at 2525 Bronson Blvd., Kalamazoo, about May 1. He lives in an apartment now at 2866 Bronson Bvd., and offices are at 112 Parkway.

ED JUNGE of **LYALL STILP's** purchasing staff, Kimberly-Clark, Neenah, was given a department staff party for his 30 years with K-C.

G. E. McCORISON is now v. p. in charge of sales at Thilmany P & P, being succeeded as general sales mgr. by **CHARLES L. DOSTAL.**

E. H. JENNINGS, Pres. of Thilmany, told over 200 at a recent Lake States TAPPI dinner of the success of Thilmany's costs-cutting campaign and the benefits of keeping employes informed of company affairs.

BEN CANCELL, president of Rhinelander Paper, is new vice pres. of the Glassine & Greaseproof Paper Mfrs. He and Mrs. Cancell were at Paper Week, and she remained a week with her relatives in the N.Y. area.

In Kimberly-Clark News

JOHN WOLLWAGE (left) former Technical Research Manager for Kimberly-Clark Corp., based at headquarters, Neenah, Wis., is now the new Associate Mgr. of Products Development and Market Research.

ROBERT W. WOOD (right), Procedures Analyst in Industrial Relations for K-C, is new Staff Safety Supervisor for the company. He spent first 13 years of 29 with K-C in operations.

ED LINDBERG, office mgr., and **JOHN KLEIN**, yard supervisor, recently retired at Marathon's Green Bay Division.

HARRY A. KENTUS is new finishing supt. at Detroit Sulphite P & P Division of Scott Paper. He held similar posts at Scott's Chester and Fort Edward mills.

BRUCE MARTIN, vice pres., mfg., Gardner Board & Carton, is president also of Gardner's newly purchased Yoder Engraving Co. in Hamilton, O.

R. W. MAHONEY, president of Appleton Coated Paper, is elected new president of the Wisconsin Paper Group, non-profit group for pooling car deliveries. **TAD MEYER** of Nekoosa-Edwards and **DAN HARDT** of Neenah Paper addressed the association.

GUS ENDERLEIN, pioneer chemist of Mosinee Paper Mills, died Feb. 19, aged 76.

FREDERICK W. KOPPLOW, JR., Delton, Mich., has been appointed mid-west representative for H. Waterbury & Sons Co., Oriskany, N.Y., according to **THOMAS N. RIDER**, sales mgr. Mr. Kopplow has a bs from Western Michigan College and joined Sutherland Paper Co. for two years. He succeeds **CHARLES KELLEY, JR.**, who returns to McCluskey Wire Co., Inc. as vice president.

FRANK KAULAKIS, JR. has joined Consolidated Water Power & Paper Co. as chief of coating development, it is announced by G. K. Dickerman, technical director. Mr. Kaulakis was with S. D. Warren Co. for 12 years in coating development. He most recently was with Clinton Foods, Inc., in technical service with the paper industry. He is a native of Lewiston, Maine, and was graduated from Northeastern University.

NORTHEAST NEWS

Hugh Chisholm's Birthday; Silvis Is Vice Pres. of P&W

C. (ED) SILVIS has been elected vice president, Parsons & Whittemore, Inc. He joined P&W in 1942 and is now in charge of their woodpulp export dept. **CARL C. LANDEGGER** has also been elected assistant secretary and will work until the end of 1956 in their European offices.

New Rayonier Appointments

ROBERT L. PLUMMER (top left) has been transferred from Rayonier headquarters in N.Y. to Japan to head sales activities in that market, according to MICHAEL A. BROWN, General Sales Manager. Mr. Plummer has been elected Vice President of Rayonier Overseas Corp.

WALDO H. BACKER (top right) succeeds him as Domestic Sales Manager. JOHN W. McCORMICK (lower left) former Assistant Traffic Manager, succeeds Mr. Plummer as Traffic Mgr.

JOSEPH H. MACHE (lower right) has joined Rayonier as Technical Service Representative, according to DR. GEORGE B. CREAMER, Manager of Technical Services. He received his B.S. in pharmaceutical chemistry from U. of Buffalo and served with U.S. Army Medical Service Corp. in Europe and in Korea. He won 22 decorations.

CHESTER STEVENS, graduate of Harvard with b.s. and master's degrees, is new technical director, a new position, at The Eaton-Dikeman Co., Mt. Holly Springs, Pa.

NORMAN F. GREENWAY, senior vice president, folding carton div., Robert Gair Co., Inc. has been elected a director.

FRANCIS M. TAYLOR has been named director of public relations for Gair.

GERALD HAYWOOD, director of the Luke, Md. research laboratory, West Va. Pulp & Paper, has been promoted to technical assistant to **J. T. WALKER**, director of technological research and development of the company. Mr. Haywood holds patents in pigments and machine coating and is a 40-year veteran of the company. As technical assistant to Mr. Walker, Mr. Haywood's work will embrace all phases of the company's technological research and development. **JOHN G. LEECH** succeeds Mr. Haywood as research director at Luke. He graduated from Penn State and is a ph.d. from the Institute of Paper Chemistry.

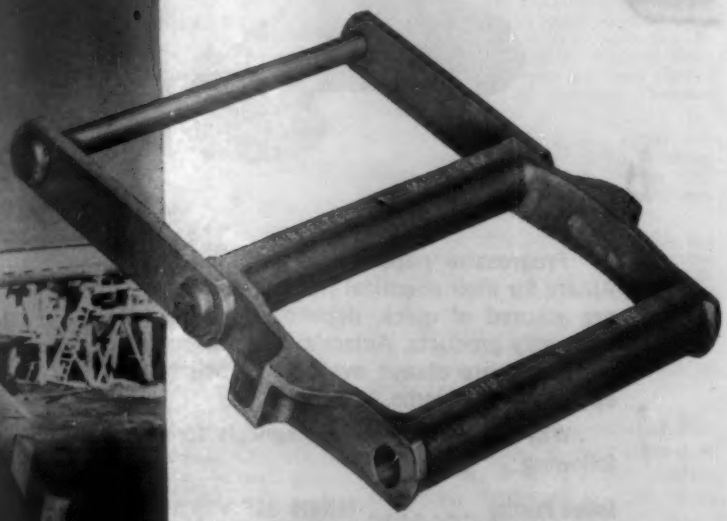
Continued on page 10

REDUCE

Refuse Handling Costs

with Rex Combination Mill Type Chains!

Here's a refuse conveyor chain that reduces refuse handling costs...*plenty!* Because it is made up of steel sidebars alternating with cast block links, it is far stronger...lasts far longer... stands up under heavier, tougher service...than the all cast-link H-Type Conveyor Chains it is designed to replace.



Just check these advantages:

• Larger-diameter rivets. • Higher ultimate strength. • Press fit of rivets in sidebars. • Wide, heavy Z-type wearing shoes assure equal wear and operation of the chain on both sides. • Attachments can be welded to steel sidebars.

You get all these features at no extra cost

Replace your present all-cast conveyor chain with this new life-adding, cost-saving Rex Combination Mill Type Conveyor Chain. It will pay dividends in extra life...tougher service. For complete details and application assistance, see your local Chain Belt Field Sales Engineer or write Chain Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT COMPANY

District Sales Offices and Distributors in all Principal Cities

FINGERPRINT RECORDS are well preserved on Pexol-sized cards. The excellent and uniform sizing protects the cards from damage due to handling and accidental wetting.

BETTER SIZING THROUGH HERCULES PEXOL®

Paper and board destined for a multitude of end uses do the job better when they have been properly sized. That's why mills rely on Pexol for optimum sizing efficiency.

Like all Hercules papermaking chemicals, Pexol fortified size is available in numerous types to insure that there is one best suited for your own manufacturing requirements. Hercules' extensive research and service facilities put more than forty years of experience in the papermaking industry at your disposal.

FINGERTIP CONTROL of complicated files is practiced with modern automatic machinery. File cards inadequately sized are subject to serious damage or may be useless on becoming wet. Pexol, Hercules fortified size, provides the required protection.

FOOD CONTAINERS require a high degree of uniform sizing. Paper milk bottles sized with Pexol help insure satisfactory performance.

Paper Makers Chemical Department

HERCULES POWDER COMPANY

INCORPORATED

965 King St., Wilmington 99, Del.

PP55-2

NORTHEAST NOTES

HOWARD BAUMGARTEN, former economist and purchasing agent, Institute of Paper Chemistry, Appleton, Wis., has joined the executive staff of Parsons & Whittemore, Inc., according to **KARL F. LANDEGGER,** president. He will be active in their "Private Point IV" program of developing pulp and paper mills in many world areas. He is a graduate of U. of Michigan and also studied at Leeds U. in England.

HUGH CHISHOLM, president of Oxford Paper Co., celebrates his 69th birthday on April 17. He raises prize Welsh terriers and Ayrshire cattle at his Purchase, N.Y., home. He sold to Uncle Sam the famed houseboat type yacht *Williamsburg* used by Presidents Roosevelt and Truman.

EUGENE H. CLAPP, president, Penobscot Chemical Fibre Co., returned recently from his annual vacation with Mrs. Clapp in Tobago and Barbados.

In New Posts in South

CLEVE FAIR (left), widely known to DeZurik customers in the South through his former associations is now Southern Regional Sales Representative for DeZurik Shower Co., Sartell, Minn., working out of that company's new offices at 205 S.E. Kalash Road, Pensacola, Fla. He will cover all Southern pulp and paper mills in 12 states from Virginia and Tennessee into Florida and East Texas.

GUY E. SANFORD, (right) 1070 Ibis Rd., Jacksonville, Fla., has been named as an additional Sales Engineering Representative in the South for Improved Machinery Inc. He will represent Impco in North and South Carolina, Georgia, Northeastern Florida. He was on hand helping start up new equipment at Ketchikan Pulp mill in Alaska. Before that was a Sales rep. in Birmingham, Ala.

ARTHUR BOLLES has been appointed production manager for Eastern Corp's. two mills at Bangor and Lincoln, Me., according to **T. RICHARD PROBST,** vice president and manager of mills. Mr. Bolles has been with Fitchburg Paper, Dicalite Co., and Great Northern Paper.

HAROLD HOLDEN, president, Eastern Corp., announces appointment of **CHARLES SABEL,** merchandising consultant, as head of their newly formed forward planning group, to study consumers' future needs.

ALBERT D. MERRILL, re-elected president and treasurer of Chemipulp Process Inc., says the company will soon offer a new line of jet-type sulfur burners ranging from 1 to 25 tons a day capacity.

CHARLES ALECK, JR. has been promoted from accountant to assistant cashier, Oxford Paper Co. and **JOHN H. ALLAN** has been promoted to superintendent of the Oxford sulfite mill, according to **WALTER HOLLAND,** mill manager at Rumford, Me.

HERBERT HEESCH has been named general sales supervisor of Hooker Electrochemical Co., Niagara Falls, N.Y. according to **JOHN S. COEY,** eastern sales manager.

BOB GUISE, has been promoted to Finishing Superintendent in The Eaton Dikeman Co. He started as Machine-tender about 18 years ago.

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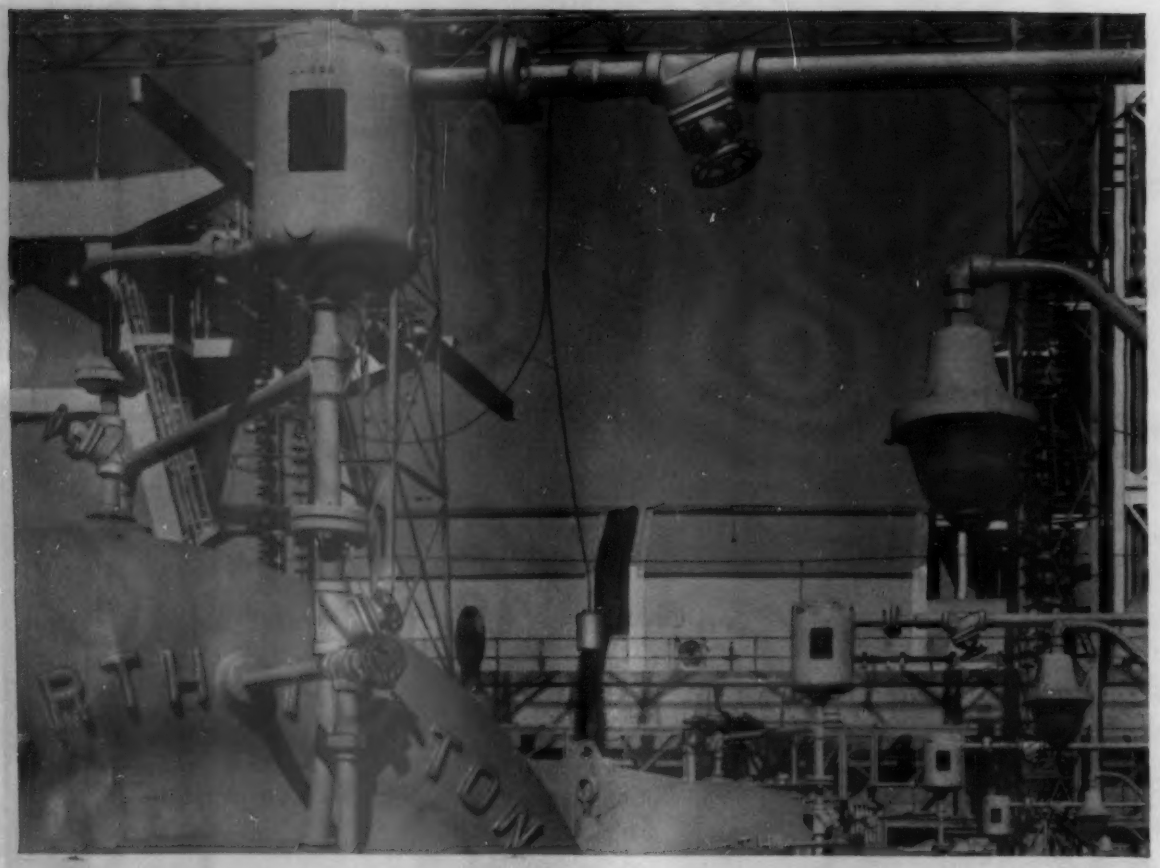

Corrosive circulating water tamed here by these CRANE VALVES

THE CASE HISTORY—Almost 2 years' operation without any maintenance of valves on circulating water lines to condensers, and on priming and instrumentation systems—with no trouble in sight. That's the experience of Southern California Edison Company's 280,000 k.w. steam station at Etiwanda with Crane Packless Diaphragm Valves.

The plant's engineers knew that sediment in recirculated water would quickly cut out the seats in ordinary valves and its corrosive elements would attack working parts to make valve operation difficult.

Not so with Crane Packless Diaphragm Valves. Their sealed bonnet keeps working parts out of contact with line fluid—free of corrosive effects. Separate disc construction with pliable insert resists erosion—seats tightly even on foreign particles. Large or small, these valves operate easily with fewer turns to the cycle. Typical Crane quality throughout—they're made better to do the job better—a bigger value for the thrifty buyer.

CRANE No. 1610 PACKLESS DIAPHRAGM VALVES

No packing to maintain. Neoprene diaphragm has longer life because it seals the bonnet only—is not subject to the cutting and crushing encountered when also required to do the seating. Separate disc gives control of fluid even should diaphragm fail. Wide selection of materials and sizes. Write for folder AD-1942 or see your Crane Representative.

CRANE CO.

General Offices: 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY . . . 1855-1955

138 Western Gear Drives
selected for new Ketchikan mill

Aerial view of new Ketchikan Pulp Company mill at Ketchikan, Alaska. Inset shows close-up of one of 138 Western Gear drives used.

WHY? ... because Western Gear drives have established an unequalled reputation for superior performance per dollar of cost. Its remote location forced the new Ketchikan Pulp Company mill, combined effort of the Puget Sound Pulp & Timber Company and the American Viscose Company, to insist on drives designed for automatic operation wherever possible and backed by utmost dependability. Specifications for equipment in the mill demanded latest in design with a proven reputation for efficiency and long life. All the drives requiring reducers from 2 HP to 1250 HP were supplied by Western Gear Works, from the log haul drives to the finishing room and in the yards and on the docks. In addition, Western Gear supplied what is believed to be the first positive drive two-speed log haul with remote pneumatic shifting control.

In the past four decades, Western Gear Works reducers and gear drives have become standard equipment in the mills of the Northwest and more Western Gear speed reducers are in use in these lumber, pulp and paper mills than all other makes combined.

Thos. J. Bannan, President

For information on how to solve your mill problems, write Western Gear Works, 417 Ninth Avenue South, Seattle 4, Washington.

PLANTS AT LYNWOOD, PASADENA, BELMONT, SAN FRANCISCO (CALIF.)
SEATTLE AND HOUSTON — REPRESENTATIVES IN PRINCIPAL CITIES

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WESTERN GEAR WORKS

PACIFIC-WESTERN PRODUCTS | POWER TRANSMISSION GEARS • MACHINERY •

PACIFIC GEAR & TOOL WORKS · SOUTH WESTERN GEAR WORKS

SOUTHERN NEWS

Snyder Starts New Firm; New Buckman, Impco Men

GEORGE SNYDER, St. Regis consultant and former pulp and paper mill manager at Pensacola, Fla., until retirement in 1953, is president of a new Gulf Fibre Products Co. there, manufacturing paper cores. His son Jack, also formerly with Florida Pulp & Paper, is manager.

LYMAN C. MARTIN, is new president of Mengel Co., following its merger into Container Corp. of America, succeeding ALVIN C. VOIT. JAMES COURTNAY succeeded Mr. Martin as gen. mgr. of the Louisville, Ky., box division.

MARTIN F. MANEY, former personnel director for the paper division, now heads the consolidated personnel dept. for the St. Regis Kraft Center, Pensacola, Fla.

In Pacific Coast News

SIDNEY COLLIER (left), newly named Vice Pres. of Pulp Bleaching Co., Seattle, headed by Raymond Hill. Mr. Collier was former Supt. of MacMillan & Bloedel's Nanaimo, B.C., mill and toured many mills in the east in that capacity. He was former Asst. Supt., Puget Pulp, Bellingham, and was born in Everett, Wash., and graduated from U. of Washington. Pulp Bleaching has had a long history in the industry, starting up in New York, and for years it was based in Wisconsin.

JOHN B. CRITCHLOW (right), new Sales Engineer for Reliance Electric & Engineering Co., based at West Coast offices, 128 North B St., San Mateo, Calif. He is an electrical engineering graduate of Stanford U., took a master's in business administration.

BILL ALLMAND, who lives at 3401 Ivor St., Hopewell, Va., has strengthened the Southern Impco representation in the South in recent months. He was former assistant to Gen. Supt. E. W. CHRIST of Continental Can Co.'s paper mill at Hopewell. Born in Wilmington, Del., Mr. Allmand graduated from University of Delaware and worked at Continental two years.

L. NEWCOMB, graduate of U. of Mississippi, is new technical service representative for Buckman Laboratories, Memphis, in the Southeast. He has completed two years in training at Memphis.

GEORGE F. TURNER, who had been personnel director of the bag factory, went in sales and RICHARD E. BAKER, former assistant in the paper division, became assistant personnel director for the Kraft Center and EDWIN F. JACKSON, personnel assistant. Mr. Maney and Mr. Turner both were born in Oswego, N.Y., and transferred to Pensacola from St. Regis N.Y. mills in 1951. Mr. Baker, Pensacola native, and Mr. Jackson, born in Yonkers, N.Y., joined St. Regis at Pensacola.

C. D. SHANKS, Bailey Meter Co., Cleveland, O., is the new res. engineer for western Virginia and southern West Va., out of 6C Chilton Manor, Bridge Rd., Charles, West Va.

R. M. "RUEY" SHETTER JR., of Shartle sales staff, will succeed R. C. STEWART, retired, in covering the South for Shartle jordans and other equipment.

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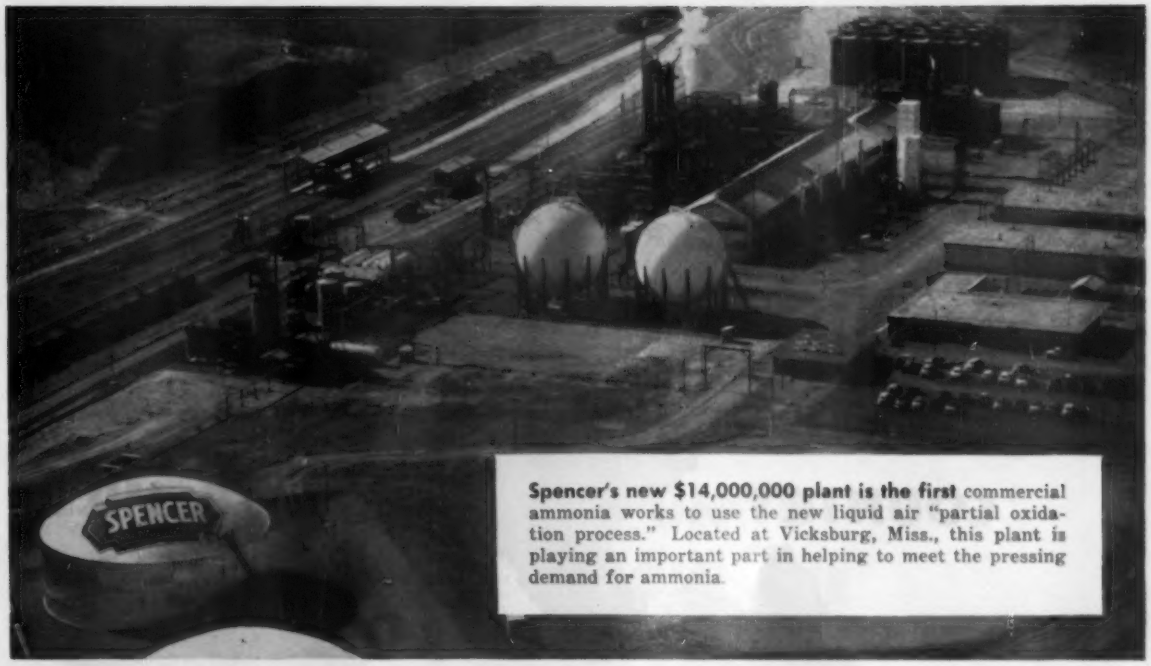


Spencer's new $14,000,000 plant is the first commercial ammonia works to use the new liquid air "partial oxidation process." Located at Vicksburg, Miss., this plant is playing an important part in helping to meet the pressing demand for ammonia.

New Ammonia Plants Assure Adequate Supply for Pulp Mills

You can now switch to ammonium bisulphite pulping with confidence

Lower costs and higher profits often await pulp producers who switch to the ammonium bisulphite process. Also the greater ease with which ammonia waste liquors can be evaporated and burned helps solve the increasingly urgent disposal problem.

Because operating conditions vary widely, it is customary to make a test run before committing the plant to permanent operation on ammonia base. Yet even where tests have clearly shown the advantages of ammonium bisulphite, some have hesitated to make the change because of the shortage of ammonia.

Huge new factories, like Spencer's $14,000,000 plant at Vicksburg, Miss., however, mean that adequate and reliable ammonia supplies are now available. Perhaps you would like to consider the merits of the ammonium bisulphite process.

If you have a question, we'll be glad to hear from you. No charge or obligation, of course. Just write: Technical Service Station, Spencer Chemical Company, Kansas City 5, Mo.

How ammonium bisulphite cuts costs, boosts profits:

1. Shorter cooking time.
2. Lower cooking temperatures.
3. Higher yields of pulp.
4. Hardwoods can be pulped.
5. Operation cleaner and more uniform.

SPENCER® SPENCER® SPENCER®

Spencer Chemical Company • America's growing name in chemicals

ANOTHER COUNTRY... ANOTHER MILL JOINS THE KCG FAMILY

NEW ZEALAND FOREST PRODUCTS

decides on

KAMYR

continuous cooking

FOR THEIR KRAFT EXPANSION

For Information Contact KAMYR INC., Hudson Falls, N.Y.

PERSONALS — Continued

SOUTHERN NOTES

JOHN K. BOYKIN is new resident mgr. for National Analine Div. of Allied Chemical at Charlotte, N. C., and he is succeeded by T. M. FERGUSON as res. mgr. for National Analine at Atlanta.

KONRAD TUCHSCHERER is new personnel supt. for Kimberly-Clark at Memphis, Tenn. He was at Neenah headquarters as staff safety supervisor. Mill Mgr. CHARLES EUBANK at Memphis recently was host to a Memphis State industrial psychology class which toured the mill. VICTOR METZIG joined Memphis engineering from staff engineering in Neenah.

KARL M. GUEST, plant mgr., NCC, Valdosta, Ga., received an engraved plaque in behalf of the mill from Employes Mutuals of Wausau for an outstanding safety record.

In Pacific Coast News

ERROL H. KARR (left), new Vice Pres. of Penn Salt Mfg. Co. of Washington, as announced by Pres. Fred C. Shanaman. Mr. Karr was former Mgr. of Technical Dept. of the Tacoma, Wash., firm and has been with Penn Salt 20 years.

BRUCE D. (DON) HARTELL (right), is new Assistant to West Coast Sales Mgr. Gordon Petrie of Black-Clawson Cos., Mayer Bldg., Portland, Ore. Mr. Hartell will represent the Shartle Division, according to Shartle Sales Mgr. Don Montville. New Coast rep. was born in Niagara Falls, N.Y., graduated from Coast Academy and has been with Buffalo Pumps and on U.S. work at Johns Hopkins Laboratory.

WILLIAM IVEY CHAPMAN, mill operator at Champion Paper's Sandersville, Ga., clay mine, is a new councilman at nearby Tennille, Ga.

KARL BENDETSEN, Champion's Texas Division mgr., heads a special gifts section in the Houston, Tex., Fine Arts Museum drive.

PACIFIC COAST NEWS

Key Men for New K-C Mill; Cavanaugh Goes South

Management team for Kimberly-Clark's new tissue mill, its first in the West, being built at Fullerton, Calif., near Los Angeles, will include JAMES A. MURPHY, to be mill manager (as announced in P & P Feb. 1955); KARL PENNAU, mill superintendent; CAL YOUNG, industrial relations supervisor, and DEL HANKE, industrial engineer. The plant will be similar to KC's Memphis mill and Lakeview (Wis.) divisions.

BOB SUMERS, formerly with the Shell Development Co., Emeryville, Calif., and a graduate of Lowell Technological Institute, Lowell, Mass., is now associated with the sales department of the Los Angeles office of the National Aniline division, Allied Chemical Co., working under the direction of HARRIS FENN, Pacific Coast manager, who makes his headquarters in San Francisco.

DAVID A. STEVENSON is in charge of a new Mason-Neilan Regulator Co. sales and service office at 111 Sutter St. San Francisco, for North California. He moved there from Los Angeles.

Continued on page 22

Keeping it SIMPLE

HAMMEL-DAHL MAKES THE SAUNDERS VALVE
AUTOMATIC
—MAINTAINING ITS BASIC SIMPLICITY
and LOW COST

Superstructure

- H-D *ALLSTEEL*
  SECURELY FASTENED TO BODY
- AIR-TO-CLOSE
- AIR-TO-OPEN
- PRELOAD (SPRINGLESS)
  THROTTLING CONTROL
- DUPLEX (SPRINGLESS)
  ON-OFF CONTROL

Body

- SCREWED AND FLANGED ENDS
- GRINNELL OR HILLS-McCANNA
- WIDE VARIETY OF MATERIALS
  FOR BODY, LINING, AND DIAPHRAGM
- SIZES ½" — 10"

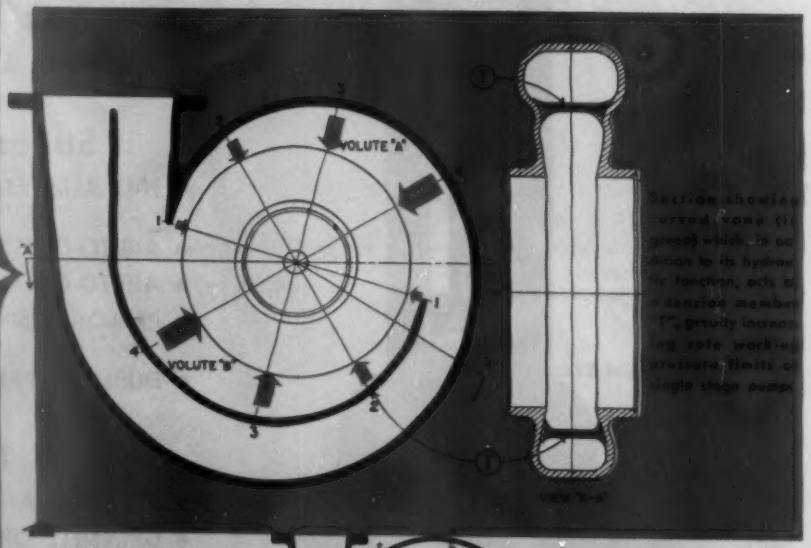
COMPLETE
Information in
H-D
Bulletin **108**

HAMMEL-DAHL COMPANY
H-D 175 POST ROAD, (WARWICK) PROVIDENCE 5, R. I., U. S. A. H-D
SALES OFFICES IN ALL PRINCIPAL CITIES
MANUFACTURING PLANTS IN WARWICK, R. I., U. S. A., CANADA, ENGLAND, FRANCE AND HOLLAND
CANADIAN MANUFACTURING AFFILIATE—GUELPH ENGINEERING CO., GUELPH, ONT.

7 BIG REASONS WHY Bingham STANDARD EQUIPMENT

1. **"Double Volute"** permits use of special over-hung impellers for handling pumpage containing large volumes of entrained air.
2. **Extra case strength** resulting from tension member in **"Double Volute"** casing.
3. **No dilution.** Hydraulic Radial Balance resulting from "Double Volute" design permits shaft to rotate on true center reducing stuffingbox leakage to a minimum.
4. **Mechanical Seals.** Hydraulic Radial Balance permits mechanical seals to establish and maintain a uniform track between the contacting faces, thereby insuring long life and trouble-free service.
5. **"Double Volute"** construction eliminates "side push" of rotating element, reducing maintenance of rotating and stationary parts to a minimum.
6. **Unit type bearing** and rotating assembly is easily removable for inspection or repair without disturbing piping or driver.
7. **High operating efficiency.**

The Key to all these Benefits is the Bingham "Double Volute" Design



No "Side Push". Diagram of a "Double Volute" single discharge case of single-stage pump (above) showing the equal pressure on the opposite sides of impeller, insuring low maintenance.

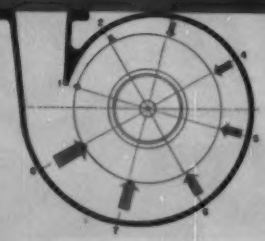


Diagram of "Single Volute" pump case (left) showing unequal pressure at opposite points around the periphery of the impeller. These unequal pressures cause "SIDE-PUSH" on the rotating elements, causing wear of rotating parts and, frequently, high maintenance.

NEW MAJOR MILLS recently placed in operation or currently under construction, equipped throughout with Bingham "Double Volute" Pumps:

BUCKEYE CELLULOSE COMPANY
Foley, Florida

COLUMBIA CELLULOSE CORP.
Prince Rupert, B. C.

E. TEXAS PULP & PAPER
Evadale, Texas

KETCHIKAN PULP & PAPER
Ward Cove, Alaska

MacMILLAN & BLOEDEL, LTD.
Nanaimo, B. C.

RAYONIER, INC.
Jesup, Georgia

SCOTT PAPER COMPANY
Everett, Washington

TASMAN PULP & PAPER
Auckland, New Zealand

WESTMINSTER PAPER CO.
Westminster, B. C.

WEYERHAEUSER TIMBER CO.
Everett, Wash. & Longview, Wash.

POWELL RIVER PAPER CO.
Powell River, B. C.

CROWN ZELLERBACH PAPER CO.
Duncan Bay, B. C.

BINGHAM PUMPS TODAY ARE SERVING OVER 200 PULP AND PAPER MILLS

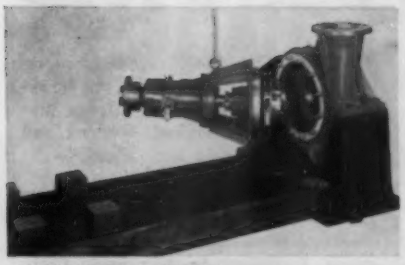
"DOUBLE VOLUTE" PUMPS ARE IN LEADING PULP and PAPER MILLS

In leading pulp and paper mills today Bingham "Double Volute" Pumps are selected as *standard equipment* because of their consistent record over the years for continuous operation with minimum maintenance.

The CF Bingham pump illustrated below, for example, has established an enviable record for dependability and low maintenance in hundreds of pulp and paper mills — but no more so than a dozen other types of Bingham Pumps now serving the pulp and paper industry.

There are more Bingham Digester Circulating Pumps now in use and on order than the total number of pumps of all other makes used for this service.

Bingham CF "Double Volute" Process Pumps mounted on floating base, used in digester circulating systems.



EASY ACCESSIBILITY
Bingham Type CF Process Pumps feature unit type bearings and rotating assembly which is easily removable for inspection or repair.

Bingham "Double Volute" Pumps will best serve your pulp and paper mill operations, as they are now serving leading pulp and paper mills everywhere. Write to your nearest Bingham office for "Double Volute" Bulletin, or send data on your pumping problem.

Bingham SINCE 1921

DOUBLE VOLUTE PUMPS RADIAL BALANCE

BINGHAM PUMP COMPANY
General Offices: 2800 N.W. Front Avenue, Portland 10, Oregon
Factories: Portland, Ore. • Vancouver, B.C., Canada

SALES AND SERVICE OFFICES

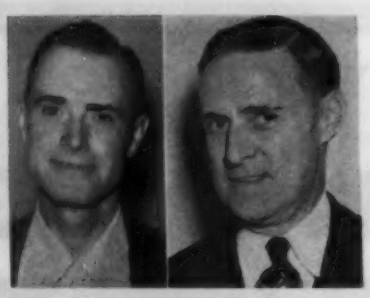
BOSTON, MASS.
CHICAGO, ILL.
DENVER, COLO.
HOUSTON, TEXAS
KANSAS CITY, MO.
NEW ORLEANS, LA.
NEW YORK CITY, N.Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.
SAN FRANCISCO, CALIF.
SEATTLE, WASH.
ST. LOUIS, MO.
ST. PAUL, MINN.
TULSA, OKLA.
TORONTO, ONT., CAN.
VANCOUVER, B.C., CAN.

PACIFIC COAST NOTES

ED J. CAVANAUGH, who has been associated with Fibreboard Products, Inc., since 1935 has been transferred from Fibreboard's Port Angeles plant, to its San Joaquin Division (Calif.) as plant engineer. R. S. TOWNE, an employee since 1947, replaces Mr. Cavanaugh as plant engineer at Port Angeles.

A. H. LINDQUIST, with Fibreboard since 1949, will assume the position of production manager of the San Joaquin Division, and **D. R. FULLER,** also employed since 1949, has been appointed boardmill supt. there.

JOHN E. SOULE, Seattle Sales Representative of Johns-Manville Industrial Products Division, was graduated recently from J-M's advanced sales training course at Manville, N.J. A native of Raymond, Wash., he served with the navy in the war, is married and has two children.



Represents Cabble Wires To Pacific Coast Mills

JOHN C. (JACK) MATHEWS (left), Sales Mgr. of Cabble Wire Co., Inc., Brooklyn, N.Y., has announced appointment of MILTON J. MAGUIRE (right), P. O. Box 415, Portland 7, Oregon, (Phone: East 6639), as Cabble representative on the Pacific Coast.
Mr. Mathews has made several trips himself to Coast mills and he has served as Vice Chairman of the Superintendents Association. Mr. Maguire, former Hercules Powder Co. Manager at Portland, has been in paper mill supply business since his retirement from that company a few years ago. He handles Brandon dryer felts, Evans Rotabelt suction units, Staley starches, as well as Cabble Fourdrinier wires.

PAUL FORTIER is retiring as general superintendent at Everett Pulp & Paper, Everett, Wash., being succeeded by **FRANK R. HAMILTON.** Both went to the West Coast mill, now a Simpson division, from Michigan.

GUS OSTENSON has concluded duties as manager, paper production, Camas Division, Crown Zellerbach to devote full time to plans as resident manager of the new C-Z kraft mill at Antioch, Calif. He is remaining in Camas for the time being.

CARL R. ERICKSON, formerly supervisor, production planning, Port Townsend Div., Crown Zellerbach, was promoted to superintendent, finishing and shipping.

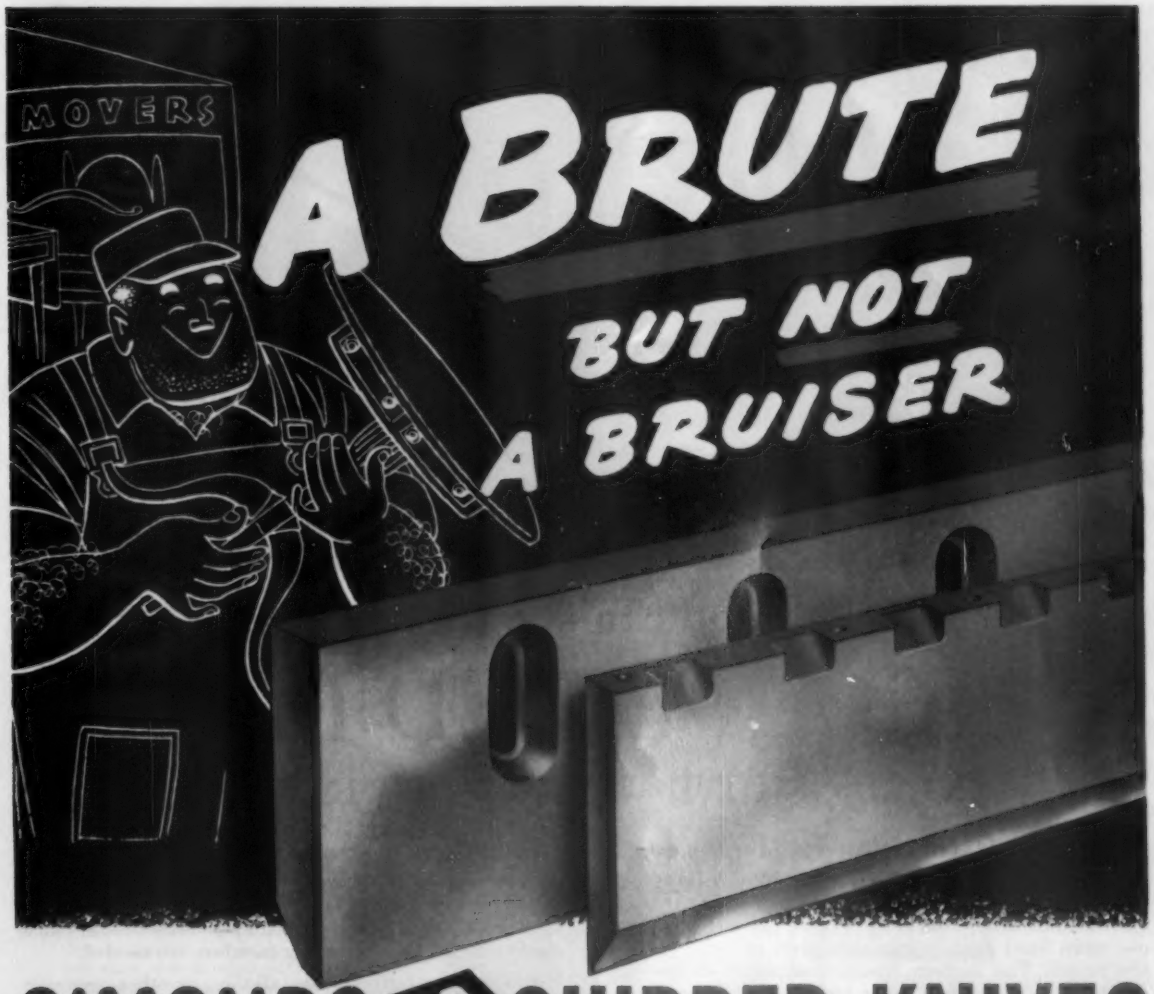
JACK BARTON, chief of paper products development, CZ Central Research, Camas, is president of a new radio "hams" group, Evergreen Amateur Radio Club.

HARRY DOKEY, foreman of Miehle machines, is named new suggestions committee chairman at Fibreboard's Stockton, Calif., mill by Plant Mgr. **W. R. BEASLEY.**

AL FRANKFURTER, who heads Sandwell & Co.'s Seattle office, returned from several months studying pulp possibilities in Pakistan for that government.

T. C. CASKEY, Caskey Engineering Co., 1736–1st Ave. So., Seattle, is new Allis-Chalmers distributor for motors and controls in west Washington.

Continued on page 26

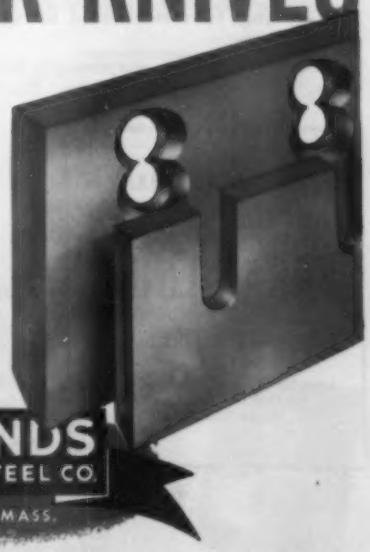


SIMONDS T-18 CHIPPER KNIVES

Here's just the right combination of chipper knife *toughness* (to prevent breaking out along the cutting edge) . . . and *keenness* (to cut chips clean and uniform without bruising or mashing). This is the reason why Simonds Chipper Knives cut *more* usable chips — *less* slivers and dust — assure you more pulp and less waste.

Made of extra-tough T-18 Steel, developed and poured in Simonds own Steel Mill, these rugged, shock and abrasion resistant knives are built to take the high speed, brutal beating of chipper operation . . . to hold a keen cutting edge longer.

Make sure of better chips, and more of them between sharpenings — get a set of Simonds Chipper Knives through your Simonds Industrial Supply Distributor today.



For Fast Service from Complete Stocks

Call your SIMONDS Industrial Supply DISTRIBUTOR

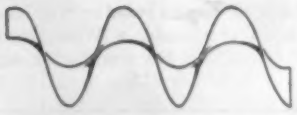
SIMONDS SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon • Canadian Factory in Montreal, Que. • Simonds Divisions: Simonds Steel Mill, Lockport, N.Y. • Simonds Abrasive Co., Phila., Pa. and Arvida, Que., Canada

See why Link-Belt screw conveyors are 8 ways better

1. LOOK FOR UNIFORMITY OF PITCH

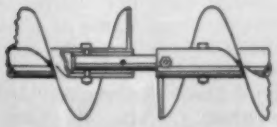
Specialized modern machinery assures accurate forming, producing uniform flighting curvature.



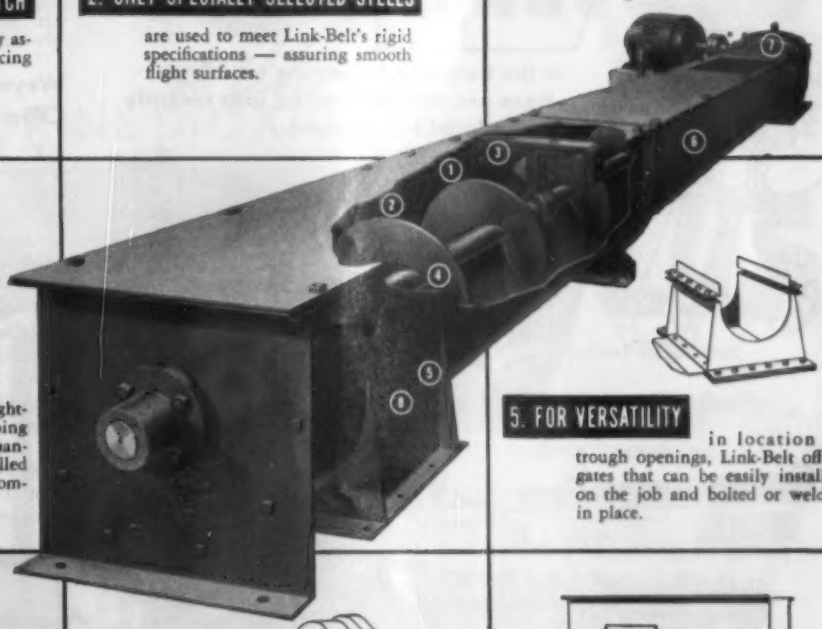
2. ONLY SPECIALLY SELECTED STEELS

are used to meet Link-Belt's rigid specifications — assuring smooth flight surfaces.

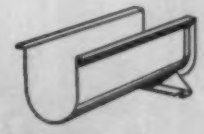
3. HERE'S A WIDE RANGE of hanger styles and mountings with various bearing materials.



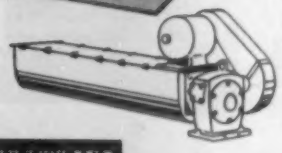
4. FOR YOUR PROTECTION straightness is checked before shipping and extra care is taken in handling and loading. Jig-drilled coupling bolt holes assure complete and easy assembly.



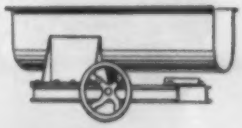
5. FOR VERSATILITY in location of trough openings, Link-Belt offers gates that can be easily installed on the job and bolted or welded in place.



6. YOU'LL DISCOVER that troughs are accurately fabricated to assure better fit of all components. Link-Belt offers a choice of metals to fit your particular application.



7. ONLY LINK-BELT builds a complete integrated line of gear and chain drives, couplings, bearings. One proved source . . . one undivided responsibility.



8. YOUR CHOICE of fixed or detachable plain discharge spouts or gates. Flat or curved slide type gates can be hand or rack-and-pinion operated.

LINK-BELT

SCREW CONVEYORS

These are only a few of the many important differences in screw conveyors. Ask your Link-Belt sales representative or distributor for new 92-page Data Book 2289.

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle; Scarboro, Toronto and Elmira, Ont. (Canada); Springs (South Africa); Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities. 10,270

PERSONALS — Continued

CANADIAN NEWS

Paukert Goes to New Zealand; Changes in Top Eddy Posts

ERNEST M. PAUKERT, for many years with Abitibi Power & Paper as mill manager at Fort William, Iroquois Falls and elsewhere, has resigned to become mill manager for Tasman Pulp & Paper Co.'s new mill at Kawerau, New Zealand.

R. A. IRWIN is new president and managing director of the E. B. Eddy Co. at Hull, Que., and W. D. MOFFATT is vice president. JAMES W. PATERSON, is v. p. in charge of woodlands, and is succeeded as woodlands manager by A. F. BUELL, former woods manager for Long-Lac Pulp & Paper.

JOSEPH L. FIORI has been named general supt. of Toronto board mills of Hinde & Dauch of Canada, a West Virginia P.&P. subsidiary. He was former supt. of Stone Container Corp.

Link-Belt Speeder Appoints C. M. Basile and G. W. Rowand to Sales Managerial Posts

C. (Cal) M. BASILE (left) is named Vice Pres. of Mfg. and Sales, and GORDON W. ROWAND (right) has been promoted to Sales Mgr. of Link-Belt Speeder Corp. Both will make their headquarters at Cedar Rapids, Ia., where the company manufactures crawler and rubber-tired shovel-cranes. Mr. Basile has been Vice Pres. in charge of Operations since 1950. Mr. Rowand has served as Asst. Sales Mgr. since 1953.

Weyerhaeuser Elects Officers and Directors

F. K. Weyerhaeuser, president of Weyerhaeuser Sales Co., St. Paul, Minn., is new chairman of Weyerhaeuser Timber Co., succeeding Laird Bell, Chicago attorney. Norton Clapp, Seattle, is a new vice president and member of the executive committee.

Re-elected board members: Mr. Bell; Carleton Blunt, Chicago; Mr. Clapp; Edmond M. Cook, Davenport, Ia.; O. D. Fisher, Seattle; Edmund Hayes, Portland, Ore.; Chas. H. Ingram, Tacoma, Wash.; Henry T. McKnight, Vienna, Va.; John M. Musser, St. Paul; F. W. Reimers, Hammond, La.; F. K., C. D. and (President) J. P. Weyerhaeuser, Jr., the latter three of Tacoma.

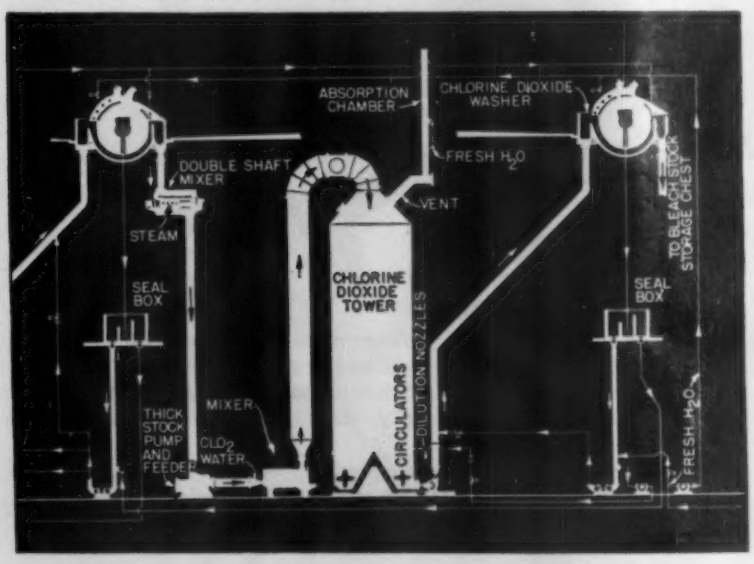
Engineers in Field for Huyck

Left to right: JOHN WILBUR, EUGENE L. VOGT and WILLIAM C. MCCLURE have been added as Field Service Engineers to staff of F. C. HUYCK & SONS, to increase field service to mills. Mr. Wilbur has a ch. e. degree from U. of Me. and has worked for S. D. Warren Co. and Carton de Colombia, Colombia, S.A. He will cover Ind., Ohio and Tenn. Mr. Vogt is assigned to Ind., Mich., Ohio and Pa. He studied engineering at Western Michigan College and has been with Sutherland Paper Co., and KVP Co. Mr. McClure is an engineering grad of Lafayette College, and will cover N.Y. and parts of New England.

90 G.E. BRIGHTNESS

with

IMPCO CHLORINE DIOXIDE BLEACHING SYSTEM



PLUS

- Highest Brightness
- Excellent Pulp Quality
- No Strength Loss
- Low Chemical Costs
- Reduced Pulp Shrinkage
- Lower Solids to Sewer
- Fits Any Existing System

With the advent of chlorine dioxide bleaching in the United States, IMPCO studied the problem carefully and tailored the first working high density system. This pioneering unit was installed in a prominent mid-southern kraft mill with outstanding results. Since that time IMPCO systems have gone into operation on soda, sulphite and semi-chemical pulp. This continuous high density process has produced successful results from the very beginning and today 22 IMPCO systems are bleaching over 6000 daily tons of high brightness quality pulps. We welcome the opportunity to work with you.

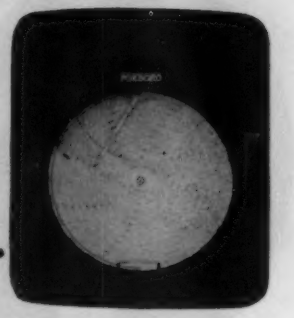
IMPCO

IMPROVED MACHINERY INC.

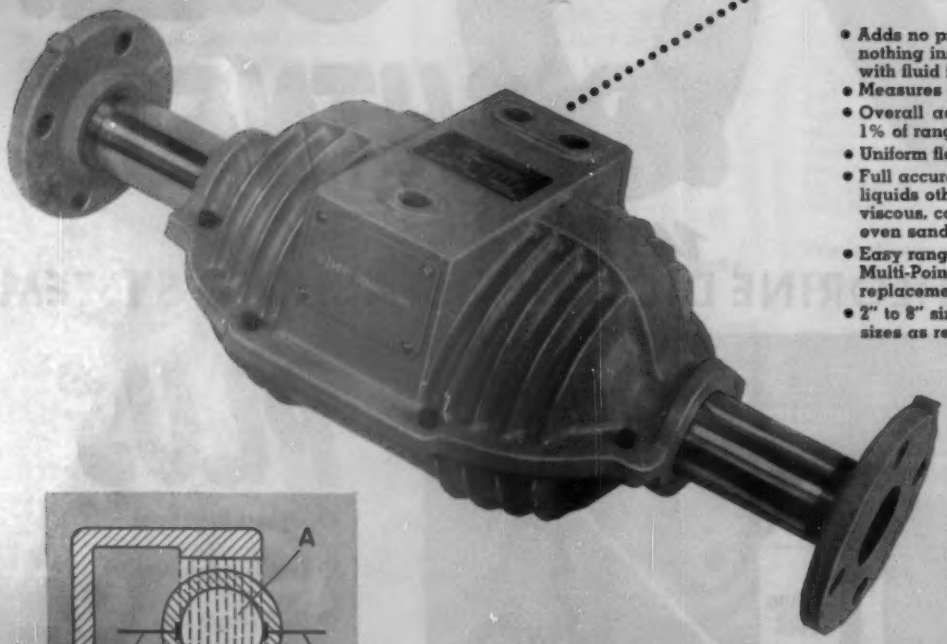
NASHUA, NEW HAMPSHIRE

Sherbrooke Machineries Limited manufacture similar equipment in Canada

NEW! a flow meter with no flow restrictions!



- Adds no pressure drop — nothing inside pipe to interfere with fluid flow.
- Measures fluid velocity directly.
- Overall accuracy better than 1% of range over entire scale.
- Uniform flow scale.
- Full accuracy sustained even on liquids other meters can't handle: viscous, corrosive, or pulpy — even sand-water slurries.
- Easy range change — either by Multi-Point Switch or range coil replacement, as preferred.
- 2" to 8" sizes standard — larger sizes as required.



FOXBORO MAGNETIC FLOW METER

SIMPLE, TROUBLEFREE, OPERATION

The Foxboro Magnetic Flow Meter operates on the same principle as a power generator. A magnetic field (A) is maintained through a standard pipe section (B) of stainless steel or other non-magnetic material. This pipe section is lined with Kel-F® or other insulating material. Liquid passing through pipe acts as moving conductor, generating an electric voltage which varies in proportion to liquid's average velocity. Flush electrodes (C) in pipe wall "pick up" this voltage which is recorded in desired flow units by Dynalog Electronic Recorder or Controller.

This premium-performance meter measures *magnetically* the flow rate of virtually any liquid except hydrocarbons. It completely ignores such common metering headaches as turbulence, suspended solids, and variations in conductivity, density, and viscosity. It even measures reversing flows.

Installation is simple. The magnetic spool piece connects into the line like any equivalent length of pipe — no seals, purges, meter runs, or straightening vanes required. Connects by 2-conductor cable to remote Dynalog Electronic Flow Recorder.

Maintenance is practically eliminated. There are no pressure taps to become plugged or frozen, no working parts to foul.

Foxboro Magnetic Flow Meters are already in use on such widely different liquids as beer, sand-and-water, rosin size, rock-and-acid slurry, viscose, and highly corrosive liquid detergent. Find out how this precise, troublefree flow meter can help your processing. Write for complete details.

THE FOXBORO COMPANY, 994 NEPONSET AVENUE, FOXBORO, MASS., U. S. A.

FOXBORO
REG U S PAT OFF

Foremost in FLOW METERING

FACTORIES IN THE UNITED STATES, CANADA, AND ENGLAND

PUGET PULP—the *whitest, cleanest, bleached sulphite pulp* that we can make is produced *particularly for the market.* To assure converting mills of top quality, Puget management is always testing new processes, always alert to improved methods, always ready to install new designs in equipment. *Gear your operations to* ***PUGET PULP.***

PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM · WASHINGTON

Mathieson Activated Alum: *settles water treatment problems*

Quick-dissolving and fast-settling, Mathieson sulphate of alumina is a superior filter alum specifically designed for industrial water and wastes treatment. Its porous structure enables it to go into solution fast. The finely ground natural silicates aid coagulation, form heavier floc, and allow a greater volume to be processed in each treatment period.

In chemical plants, pulp and paper mills, petroleum refineries, Mathieson Activated Alum is providing efficient, economical water treatment and helping to solve sensitive wastes disposal problems. Mathieson's technical service staff is available for advice and practical assistance on application and handling of sulphate of alumina in all industrial installations.

See if Mathieson Chemicals can't settle your water and waste treatment problems. In addition to Activated Alum, Olin Mathieson is a major producer of chlorine, ammonia, sodium chlorite (chlorine dioxide), HTH hypochlorite products, sulphuric acid, hydrazine, caustic soda, and powdered and fused soda ash (PH-Plus). Your Mathieson representative will put you in touch with the men who can best serve you—or write today for complete information.

MATHIESON CHEMICALS

OLIN MATHIESON CHEMICAL CORPORATION

INDUSTRIAL CHEMICALS DIVISION · BALTIMORE 3, MD.

3052

MATHIESON

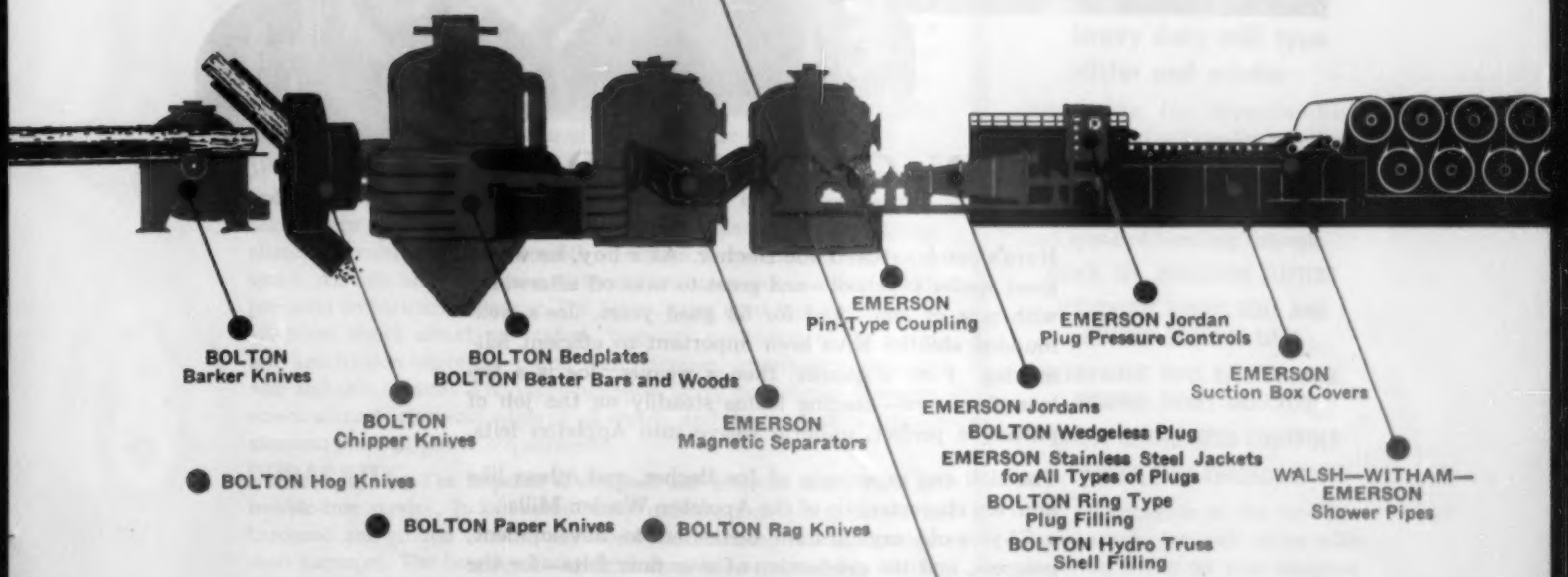
CAUSTIC SODA · SODA ASH · CHLORINE · SULPHURIC ACID · SULPHUR · AMMONIA · NITRATE OF SODA · BICARBONATE OF SODA · NITRIC ACID · SULPHATE OF ALUMINA · SODIUM CHLORITE PRODUCTS
ETHYLENE OXIDE · ETHYLENE GLYCOL · METHYLENE GLYCOL · TRIETHYLENE GLYCOL · POLYGLYCOLS · DICHLOROETHYLETHER · ETHYLENE DICHLORIDE · METHANOL · SODIUM METHYLATE · ETHYLENE DIAMINE

How BOLTON Quality serves the Paper Industry

Bolton quality is old, yet forever new — old because, since 1905, it has been synonymous with the best in materials, manufacturing processes and service — new because **Bolton quality** keeps always a step in advance of the industry's ever-changing requirements and methods. He who buys Bolton, buys best.

The Bolton representative in your area is prepared to tell you about Bolton's services. They include engineering advice based on years of experience in the paper industry, complete stocks on hand to supply needed items quickly. Our plant is prepared to design and produce products to fit your special requirements.

The key spots where **Bolton quality** serves the paper mill are shown below.



John W. BOLTON & Sons, Inc.

Lawrence, Massachusetts, U.S.A.

SPELL-DOWN CHAMP-1898

Here's good-natured Joe Becher. As a boy, he was a great speller in school—and great to take off afterwards with pole or gun. And for 53 good years, Joe's well-rounded abilities have been important to efficient felt-making. First a spinner, then a weaver, Joe is a top loom-fixer now—keeping looms steadily on the job of putting a perfect, uniform weave into Appleton felts.

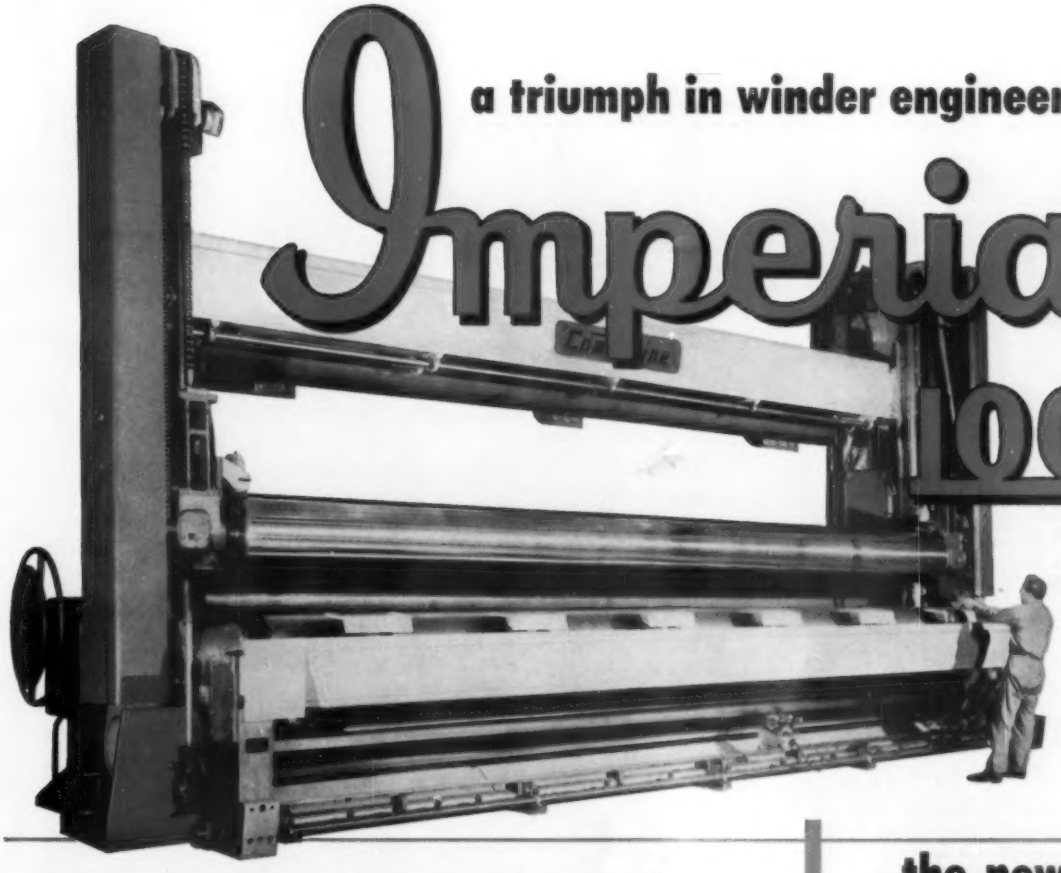
The skill and experience of Joe Becher, and others like him, are characteristic of the Appleton Woolen Mills . . . a 73-year-old organization dedicated to development, progress, and the production of ever finer felts—for the finest paper-making.

APPLETON WOOLEN MILLS

APPLETON, WISCONSIN

a triumph in winder engineering!

Imperial 100



ADAPTABILITY: The Imperial handles all weights and types of paper and board. A unique suspension, and adjustable automatic counterbalancing, provide optimum torque and pressure distribution for all grades. The machine can be equipped with either score-cut or shear-cut slitters, or a combination of both, to provide the best slitting method for each of your materials. The Imperial is available in 42″ and 72″ rewind capacities for jumbo roll winding. It can also be equipped with semi-automatic attachments for high speed production of small diameter counter rolls.

SPEED: The Imperial runs at extraordinary rates both when accelerating and at constant speed . . . meets all production needs. Conservative, field-proven engineering, and precise dynamic balancing of all rotating elements, positively assure smooth operation from start to maximum speed. All rolls and main drive elements use heavy duty, oil lubricated, precision anti-friction bearings. The heavy, extra rigid framing dampens vibration. Shock absorbing, rewind "hugging" suspension of the riding roll, and friction inhibiting rewind shaft retention, contribute to superior web and strip control. The super-precision heavy duty slitting elements assure accurate clean-cut edges at all speeds, and the heavy duty driving elements meet all power requirements.

DURABILITY: The Imperial is designed and built for many years of trouble-free service. It has extra heavy construction throughout, with hardened and ground vertical ways for both the riding roll and rewind shaft carriages. The bearings and gears have a life expectancy in excess of 100,000 hours. The gear drive is designed to eliminate dynamic loading and is equipped with a water-cooled, forced-feed lubricating system. Centrifugal lubricant and dust seals are used on all high speed elements . . . and the superior shock absorbing rewind shaft handling equipment assures longer, lower-cost operation.

CAMERON MACHINE COMPANY 61 Poplar Street Brooklyn 1, N. Y.

the new Camachine®

heavy duty mill type slitter and winder

Job-proven for dependability, economy and roll quality at speeds never before achieved!

FEATURING extraordinary ease and speed of handling through:

QUICK SET, PRECISION SLITTERS

HYDRAULIC RIDING ROLL AND REWIND BEARING LIFTS

HYDRAULIC ROLL EJECTOR AND REWIND SHAFT INJECTOR

SIMPLE CENTRALIZED CONTROLS

DIRECT, EASY THREADING

The performance of the new Imperial speaks for itself in the mills it serves. Write on your company stationery for the complete story about the Camachine Imperial. Let us show you why it is the most productive, adaptable and durable mill type slitter and winder you can own.

1955 WORLD REVIEW NUMBER ANNOUNCED BY PULP & PAPER . . .

HIGHLIGHTS OF THE 1955 ISSUE

The publishers of PULP & PAPER have announced plans for the 28th annual review number which will be published in July of this year. The World Review Number will carry statistical and reference data from 40 nations around the world, providing readers with an international analysis of the pulp and paper industry.

Again in 1955, the World Review Number will follow the established format as determined by the experience of the past 28 years. The following are highlights of the 1955 issue:

World-wide Pulp and Paper Industry Summary

. . . brief; but containing all pertinent facts on developments and trends during 1954.

Complete World Pulp Story

. . . including *World Pulp Map*, showing flow of market pulp during 1954; *World Pulp Review*, showing trends and predicting what's ahead; Story of Non-Paper Pulps, covering textile and plastics uses; and exclusive World Market Woodpulp Directory.

Domestic Summary

. . . a review of the year in the United States and including complete statistical tables on the pulp and paper industry, woodpulp and pulpwood.

Canadian Section

. . . a review of activities of our North American neighbor in manufacture of its most important commodity—pulp.

Foreign Summaries

. . . the story of pulp and paper production and consumption in each of the important producing and consuming countries of the world.

Statistical Review

. . . this contains statistical tables covering every form of activity in pulp and paper production.

Pulp and paper is a closely integrated industry—from tree planting and harvesting to the manufacture of finished products worth $7 billion a year. It spends more than $400,000,000 annually for new facilities and equipment. For specific information concerning your market in this industry, write PULP & PAPER, 370 Lexington Avenue, New York 17, N. Y.

REMEMBER THESE FACTS WHEN PLANNING YOUR WORLD REVIEW NUMBER ADVERTISING:

Everyone with influence in the pulp and paper industry reads and uses the World Review Number and everyone knows it. That's why so many advertisers, year after year, provide for prominent space in this exclusive year-round reference work that combines prestige, coverage and economy with rewarding results.

If you are not a regular advertiser, you will find the World Review Number the best possible issue in which to launch your advertising program. Advertising placed consistently in each of PULP & PAPER's monthly issues—augmented by prominent Review Number space is your most productive plan for building sales and prestige in the pulp and paper industry.

PULP & PAPER is consistently preferred by its advertisers for its

- Largest Paid Circulation
- Distribution Where It Counts Most
- Growth Parallel with Industry

ADVERTISING RATES . . .

	Number of Insertions Per Year		
	*13	*7	1
Full Page	$210	$245	$280
Two-Thirds Page	190	215	240
Island Half Page	170	195	220
Half Page	140	165	190
One-Third Page	120	140	160
Quarter Page	95	110	125
Sixth Page	70	80	90
Eighth Page	50	60	70

*Insertion schedule includes space in monthly issues.

Advertising Closing Date—June 15

PULP & PAPER

A MILLER FREEMAN PUBLICATION

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3518 Dante St., New Orleans 18, La. . . . . AMhurst 2762
71 Columbia Street, Seattle 4, Wash. . . . . MAin 1626

WHAT'S NEW AT BRISTOL

FIRST instrument system
BASIC GRAPHIC-PANEL

It's BRISTOL'S new metagraphic instrument system

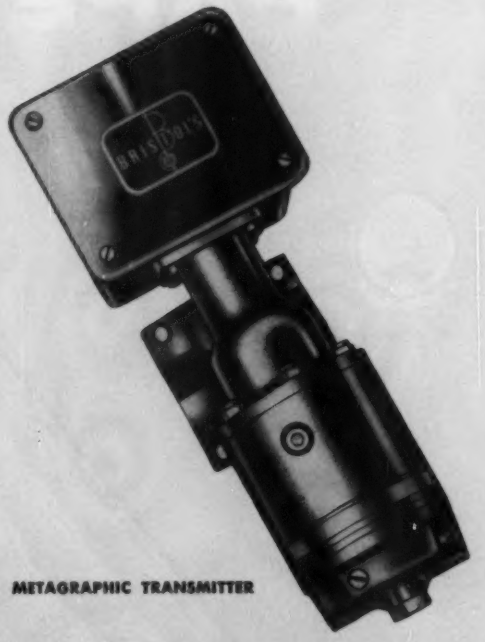
A WIDE SELECTION: For example, there are 35 receiver and 34 controller models and the widest variety of transmitters on the market. A model can be found among these that will exactly meet any requirement.

FULL PLUG-IN SERVICE: Change recorder to an indicator or vice versa in 10 seconds with ABSOLUTELY NO INTERRUPTION WHATSOEVER TO AUTOMATIC CONTROL.

Pull complete chassis out (one piece chassis — no tools required). With chassis removed you get the same automatic control as before.

Change from one model to another or if trouble is suspected in a plug-in unit, the doubtful unit can be replaced by a spare while the suspected unit is checked in the service shop — out-of-service time is thus eliminated.

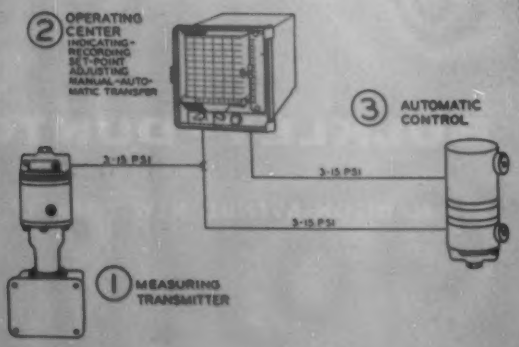
CONTINUOUS VALVE POSITION INDICATION on *same instrument scale as set point scale*, gives continuous data on control valve position—makes "bumpless" transfer possible, simply by matching pointer positions — no need to read actual scale values — minimizes reading errors — speeds operations.



METAGRAPHIC TRANSMITTER

SUPPLIED IN A VERY WIDE VARIETY OF SPANS AND RANGES: For example, absolute pressure instruments are made in ranges as low as 5mm mercury absolute. Pressure instruments as low as 5 inches water to 10,000 psi. Over-range protection available up to 400% over range.

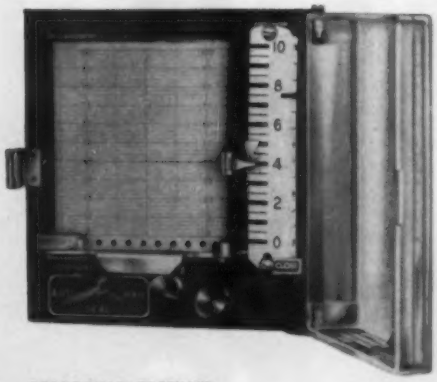
STANDARD BRISTOL MEASURING ELEMENTS ARE USED — high torque, wide-angle travel gives powerful, positive operation. Very sensitive — as little change as 0.03% of range, including reversal.



METAGRAPHIC INSTRUMENTS MEASURE, RECORD, INDICATE, AND AUTOMATICALLY CONTROL

Pressure	Liquid Level
Vacuum	Flow
Absolute Pressure	Temperature and
Differential Pressure	Mechanical Motion

that carries out idea completely!

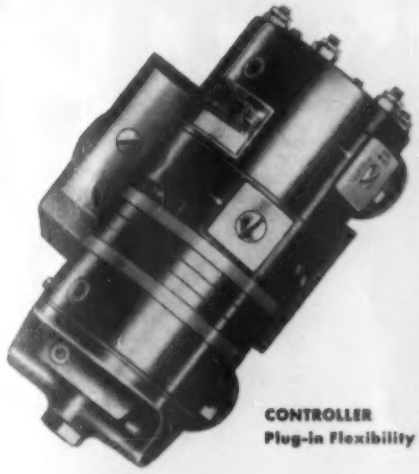


RECORDING RECEIVER:
Also furnished as an Indicator

NO INTERRUPTION WHATEVER TO AUTOMATIC CONTROL when receiver chassis is removed. The chassis of a Metagraphic Receiver is plug-in construction and can be changed from a recorder to an indicator or back in a matter of 10 seconds.

OFFERED FOR UP TO 3 MEASURED VARIABLES — with air pressure regulators or air-loaded regulators — three-position manual-automatic transfer valves for automatic control and *six-position (on the same knob) transfer valves for cascaded control.*

ALL MEASUREMENTS ON SAME SCALE PLATE: Deviation of pointers shows at a glance conditions of control — no need to read scale.



CONTROLLER
Plug-in Flexibility

VARIETY AND FLEXIBILITY: The most flexible and complete line of controllers offered — 34 different models, including the following variations:

1. Remote set-point
2. Integral set-point (with or without air-loading)
3. Pipe-connected
4. Plug-in receiver mounted
5. Plug-in pipe or surface mounted
6. Five models of control action as follows:
   a. On-Off
   b. Adjustable proportional
   c. Adjustable proportional plus reset
   d. Fixed proportional plus reset
   e. Proportional plus reset plus rate (derivative)

Write for our product data sheets. The Bristol Company, 142 Bristol Road, Waterbury 20, Conn.

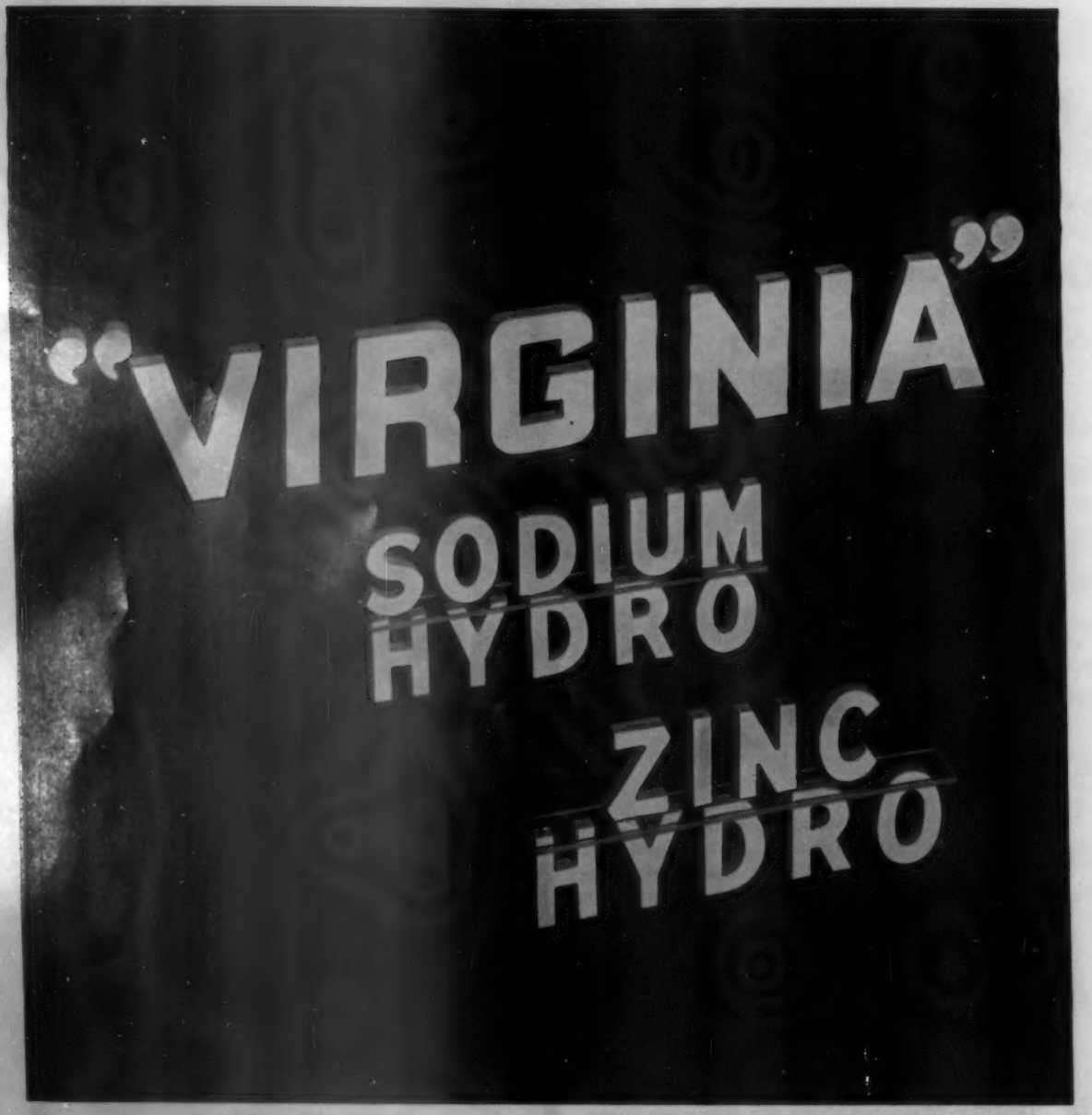
6.5.2

BRISTOL'S

BRISTOL

POINTS THE WAY IN HUMAN-ENGINEERED INSTRUMENTATION

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



Which best suits your needs?

"Virginia" produces both of these powerful reducing and bleaching agents which have lowered production costs in several industries. Our know-how in most applications comes from years of experience.

One or both of Virginia Hydros may be specific in your process or mill. Let us help you determine which will do the most effective and efficient job. Our experience with these hydros can be used to your advantage; so why not call in our technical staff for a discussion of your bleaching problems?

"Virginia" service will please you, too. Large stocks, ample production capacity, quick dispatch of orders, and a fleet of fast trucks insure prompt deliveries.

Send today for literature and test samples of Virginia Hydros.

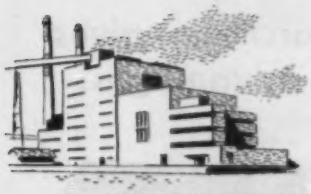
VIRGINIA SMELTING CO., Dept. 82,
West Norfolk, Va.

VIRGINIA Chemicals

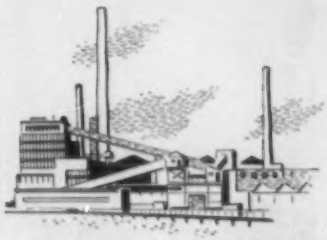
Field Offices: NEW YORK • BOSTON • DETROIT
CHICAGO • ATLANTA • ASHEVILLE
Available in Canada and many other countries

6 new units in 6 years

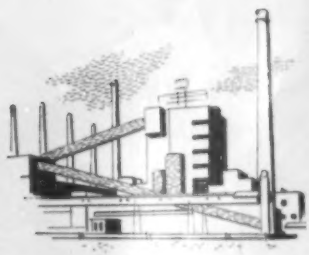
for New England Electric System



Salem Harbor Station in Salem, Mass.
Two 60,000 kw. units — '51 & '52



Webster St. Station in Worcester, Mass.
30,000 kw. unit — '50



South Street Station in Providence, R. I.
55,000 kw. topping unit — '53

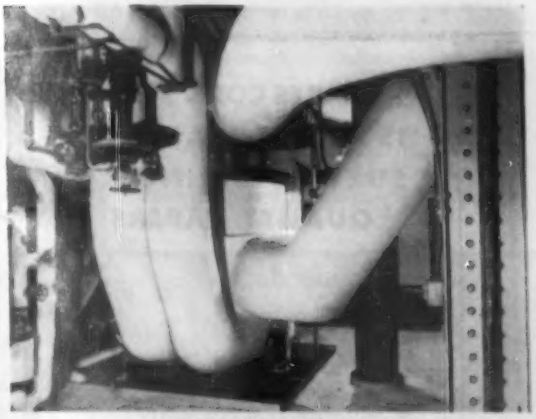
Manchester St. Station in Providence, R. I.
Two 40,000 kw. units — '48 & '49

Proof of the reliability of GRINNELL PREFABRICATED PIPING

Here's a clear-cut case of the value of choosing the right power piping fabricator *from the start!* New England Electric System, when launching its power expansion program, called in Grinnell. Satisfied that Grinnell's facilities rated very high, they okayed Grinnell Prefabricated Piping for the first of a series of new steam-electric generating units. The "proving ground" was to be the unit itself *in service.*

How efficiently that unit performed is written in the record! For starting in 1948, and then each year for 5 consecutive years, Grinnell Prefabricated Piping was employed *exclusively* in constructing 6 new units in the New England Electric System.

This special ability in the fabrication of piping is due to a number of things. Grinnell fabricates in shops under ideal conditions, with modern equipment, by personnel qualified for each class of work. Included in the price (which is determined in advance) are such items of expense as: interpretive engineering, shop sketches and planning, procurement of materials, power services, expendable tools and supplies. There are no charges for waste material or spoilage. All piping is rigidly inspected and tested to comply exactly with customer specifications and applicable codes. Consult Grinnell on *your* next piping installation.



Main steam and reheat lines at reheat intercept valve, Salem Harbor Station.

ATTENTION! *Company Groups and Technical Associations. A 30-minute color sound film showing the quality and economy of Grinnell Shop Fabrication of all classes of piping is available. Write us, giving date desired.*

GRINNELL
WHENEVER PIPING IS INVOLVED

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

Specify HERCULES

Brand Corn Starch

...the only starch that gives you these 3 advantages:

HERCULES CORN STARCH IS A "NATURAL" FOR SURFACE SIZING OF QUALITY PAPERS

- Greater clarity
- Greater strength
- Uniformity of film
- Superior film continuity
- Lower viscosities
- Increased adhesiveness
- Lower congealing rate
- Excellent color

Service to the Industry ... Take advantage of our free technological service. Our field and laboratory experts welcome an opportunity to help you solve your problems. Write today...

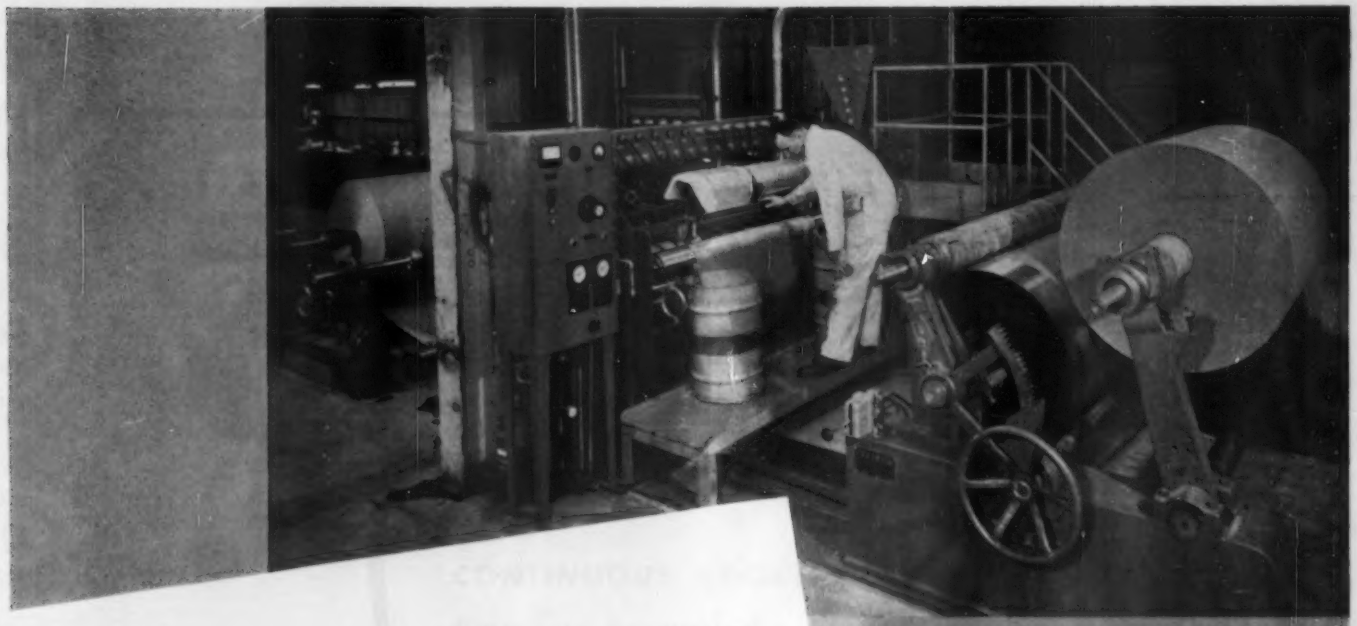
1. ***Dependable quality*** ... Hercules brand corn starches are the only starches whose production is under complete automatic instrument control from start to finish. You are assured of a constant supply of Hercules.

2. ***Meet all specifications.*** They are used extensively in the beater, in off-the-machine coating and in calender sizing. They can be modified to suit most equipment.

3. ***Greater mill efficiency with Hercules*** ... Hercules Starches insure uniformity, better pick test, and high Mullen Test. Production is speeded, and the quality is improved with Hercules Brand Starches.

Corn Products Refining Co.

17 Battery Place, New York 4, N.Y.



Guardian paper company

4246 HOLLIS STREET, OAKLAND 8, CALIFORNIA PIEDMONT 5-6446

December 8, 1954

The Black-Clawson Company
Dilts Machine Works Div.
Fulton, New York

Attention of: Mr. R. J. Jacobs

Dear Bob:

We are extremely pleased with the extruder laminator you built for us. We put the unit into operation last month and within a few days had an excellent salable paper. We are appreciative of the many engineering details incorporated in the machine.

We erected the machinery with local men who were not experienced paper-machine people, and the component parts went together without a hitch. We did not send out any pieces for machining, drilling or change in any way.

We wish to thank you and the engineers in your organization for the excellent start they have given this new company.

Sincerely yours,

Thomas C. Sewell

TCS/jkl

Thomas C. Sewell, President
Guardian Paper Company

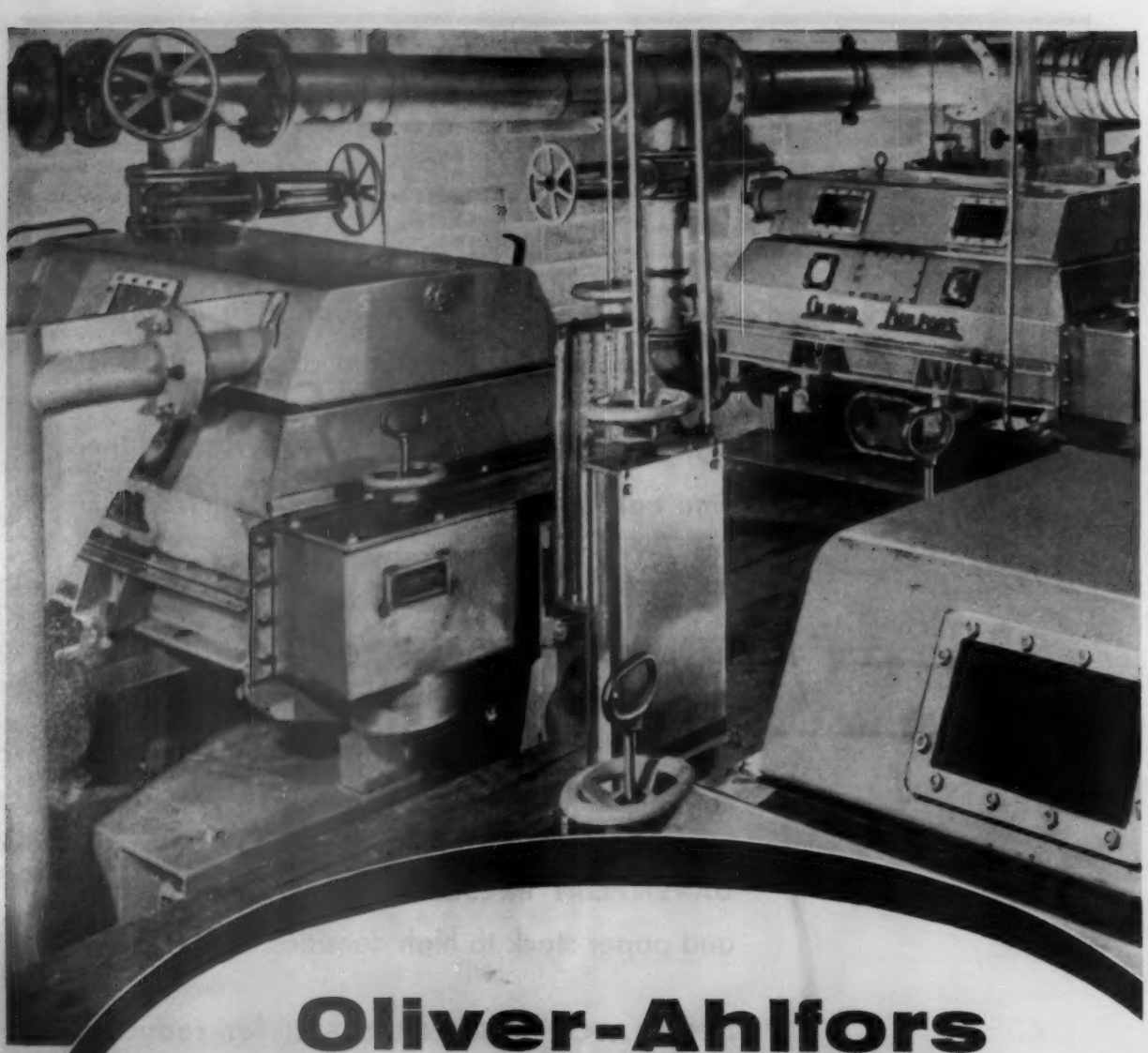
A New Company off to a Flying Start with a Dilts Polyethylene Extruder-Laminator

The Guardian Paper Company, Oakland, California, began operations with the highly successful start-up of this polyethylene extruder-laminator line engineered for them by Dilts.

By selecting the proper combination of standard units, Dilts engineers furnished a complete package installation . . . an efficient, economical machine line designed to best meet the new firm's specific production requirements.

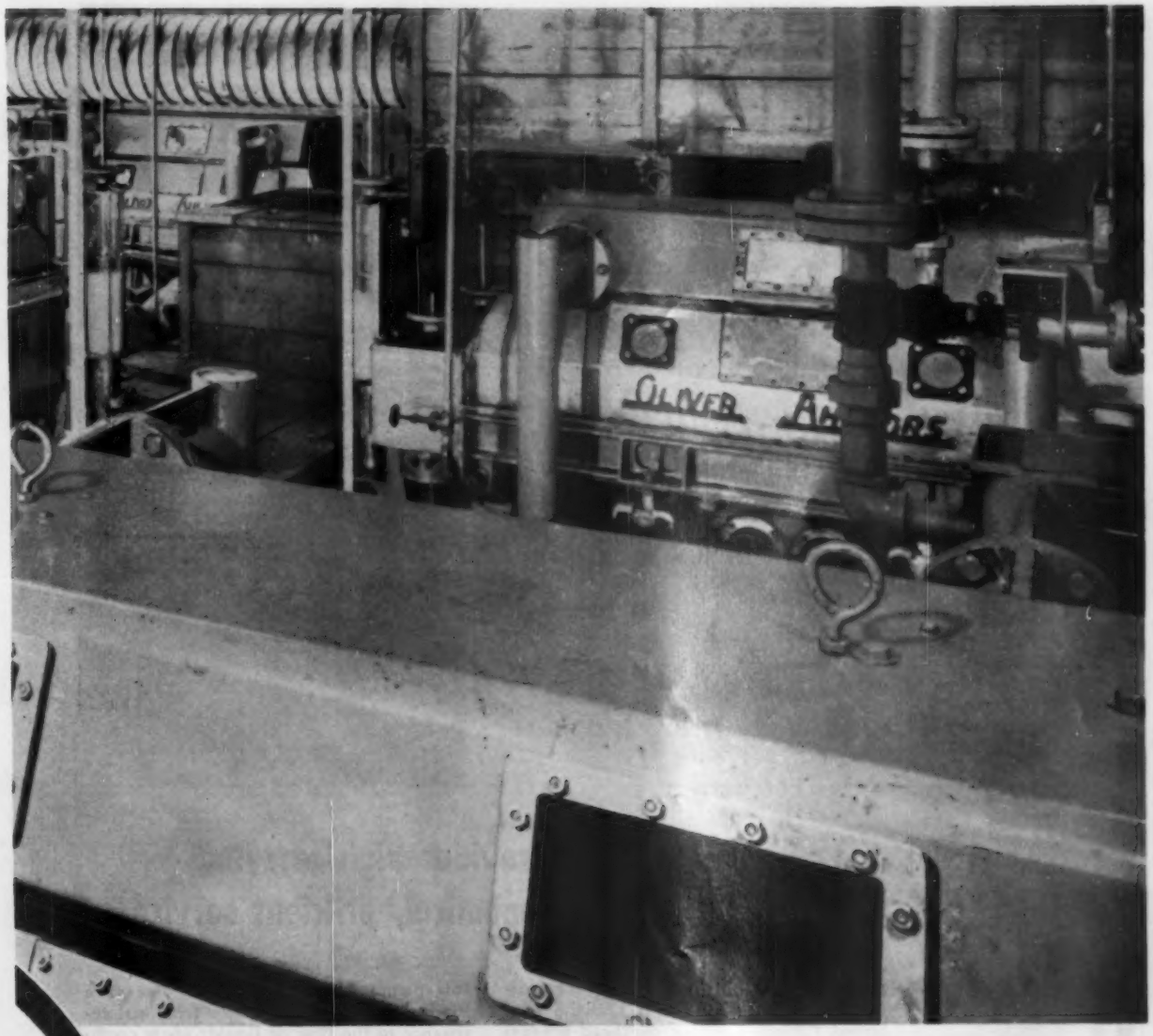
THE BLACK-CLAWSON COMPANY

DILTS MACHINE WORKS DIVISION · FULTON, N. Y.



Oliver-Ahlfors Screens Handle 165 Tons of Paper Pulps Daily

In Large Washington Kraft Mill

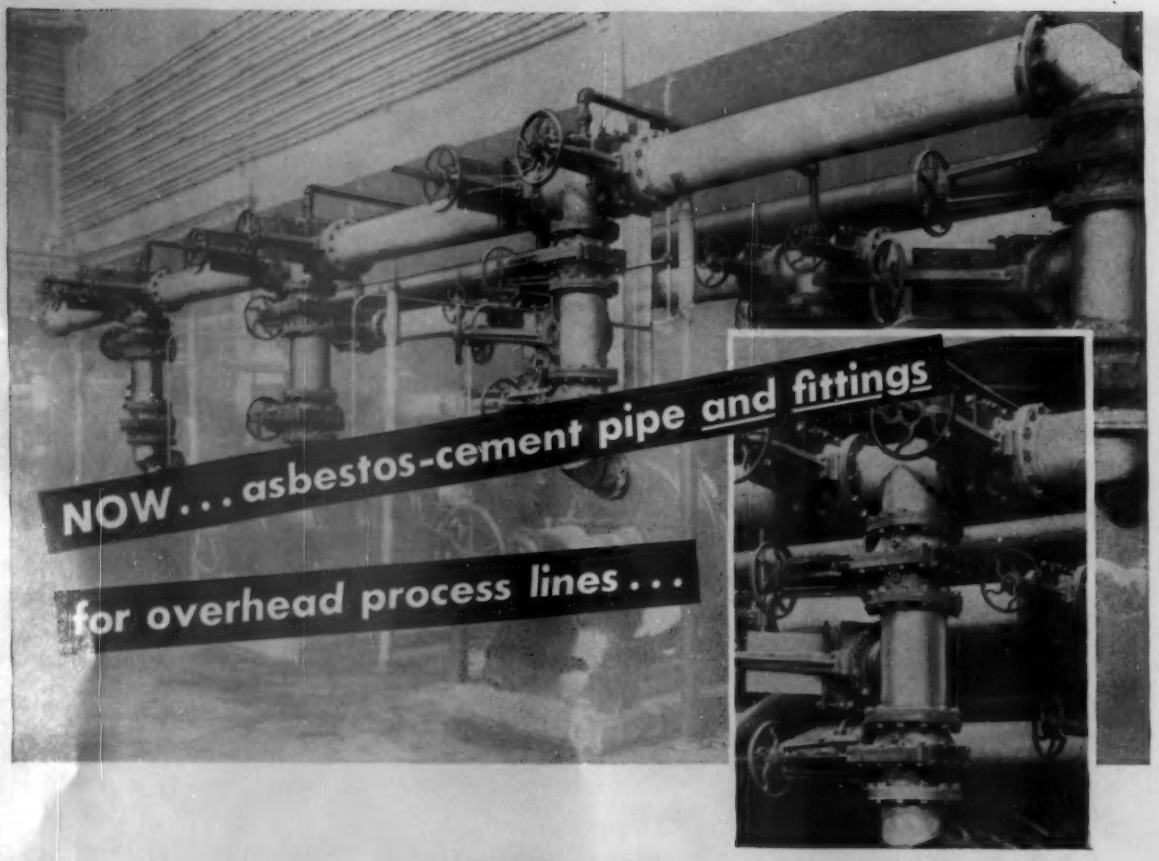


This compact installation of Oliver-Ahlfors Pulp Screens is located in the St. Regis Paper Company's Tacoma, Washington mill. 165 tons of fully bleached kraft pulp are handled by these screens daily. Of the units shown, five are for primary and one for secondary screening.

The Oliver-Ahlfors Screen differs from conventional flat screens by operating on the "upflow" principle. Accepted fiber is screened upward through submerged screen plates, while the heavier fiber bundles, dirt and scale settle in the screen vat and are withdrawn through adjustable reject outlets. Automatic hydraulic screenplate cleaning showers and screens are totally enclosed to prevent pulp contamination and also contribute to a clean, dry screen room.

Why not find out how you can benefit with Oliver-Ahlfors "upflow" Pulp Screens? Bulletin No. 750 gives the complete story. For your free copy, write Dorr-Oliver Inc., Stamford, Conn.

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.



Transite Pressure Pipe provides high carrying capacity and economical, efficient service...

YOU can now obtain Transite® asbestos-cement Pressure Pipe with Transite-lined Streed Fittings for your overhead process systems. This permits the installation of high strength non-metallic pipe for handling raw and treated water, washed and unwashed pulps, stocks of all kinds, multi-stage bleaching systems (except direct chlorination) and certain mill wastes. There is no better way to provide clean pulp and stock than by handling it through Transite Pressure Pipe.

Low installation costs—Transite is light in weight, easy to handle, and can be drilled, cut, threaded and machined with standard tools. *And*, because its carrying capacity stays high, you can specify the smallest diameter pipe necessary . . . thus making the minimum capital investment.

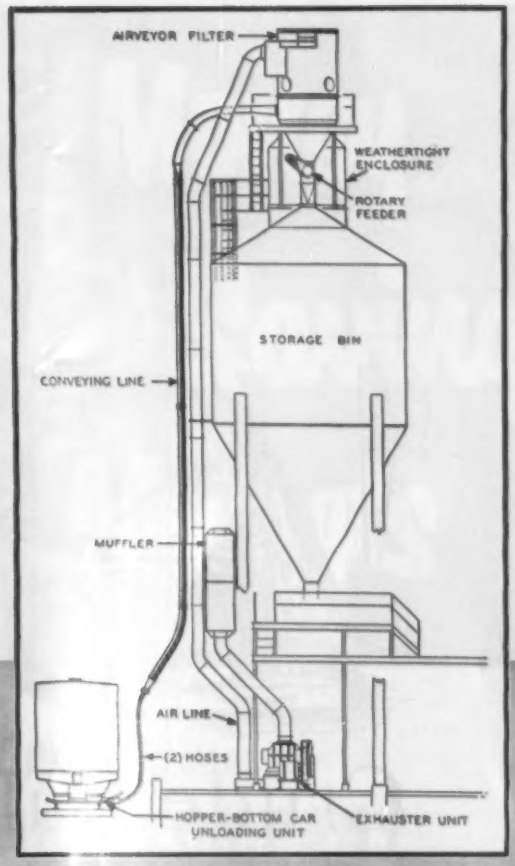
Low pumping costs—Transite Pressure Pipe offers exceptionally low frictional resistance to the flow of liquids (flow coefficient C=140 for water). Since it is resistant to sliming and bacterial growths, this high carrying capacity is continuously maintained so that pumps can be operated at maximum efficiency and lowest cost.

Low maintenance costs—Transite cannot rust and is highly resistant to the corrosive action of mild acids and alkalies. Consequently, it requires a minimum of maintenance throughout its long life.

For underground service too, such as water supply or fire lines, Transite Pressure Pipe offers the same outstanding advantages. To obtain further information on Transite Pipe Systems for paper mills, write Johns-Manville, Box 60, New York 16, N. Y.

®Reg. U. S. Pat. Off.

Johns-Manville TRANSITE PRESSURE PIPE



AGAIN . . .

Mead Corporation installs "The" AIRVEYOR

Flowing mill-supply chemicals, such as lime, soda ash, salt cake, starch and clays with the Airveyor—unloading cars to storage or in-plant conveying—is the simplest, most economical conveyor for your plant.

Mead Corporation has learned from experience that it pays to use the Airveyor, having continued to install such equipment wherever possible and practical, until today in four of its plants, nine such systems are in use. One of the most recent installations is that for unloading lime from cars to storage, at rate of 15 tons an hour, in the Chillicothe, Ohio plant, shown by photograph and drawing above.

The paper industry has learned by experience that the Airveyor is engineered and built for superior performance . . . well over a hundred systems have been installed in various mills in the United States and Canada.

If you have a problem in your handling of mill-supply chemicals, why not let us make a study of your layout . . . chances are we may be able to show you a more efficient and profitable method of operation . . . such a study costs you nothing, obligates you in no way.

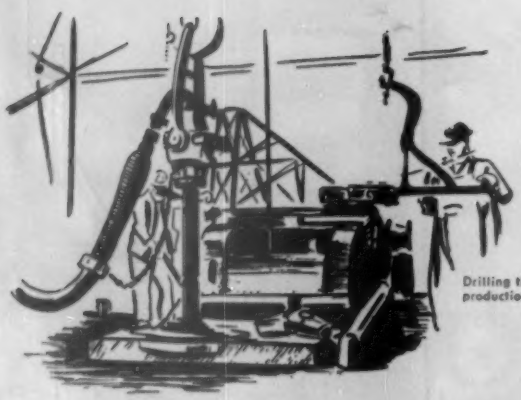
Fuller
CONVEYS BY AIR
NOTHING MOVES BUT THE MATERIAL

FULLER COMPANY—CATASAUQUA, PA.

Chicago • San Francisco • Los Angeles • Seattle • Birmingham

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS—
COMPRESSORS AND VACUUM PUMPS—
FEEDERS AND ASSOCIATED EQUIPMENT

A-100
3309



Drilling the production wells

Crude Sulphur

for Industrial Use

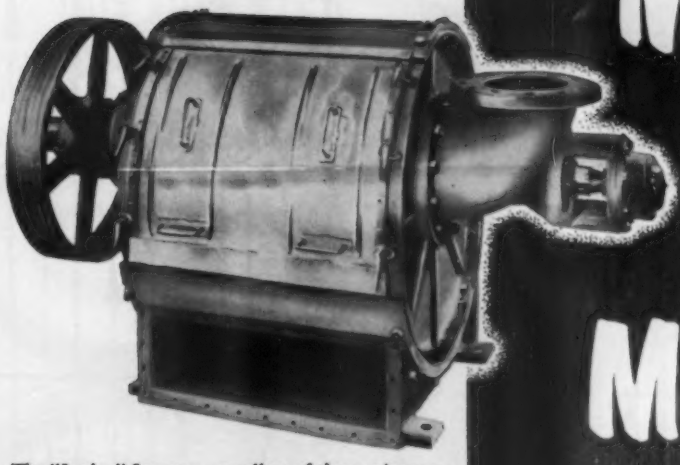
from the properties of

Texas Gulf Sulphur Co.

75 East 45th Street • New York 17, N. Y.

Producing Units

- **NEWGULF, TEXAS**
- **MOSS BLUFF, TEXAS**
- **SPINDLETOP, TEXAS**
- **WORLAND, WYOMING**



The "Junior" Screen . . . smallest of *three* units producing from 35 to 150 tons per day, respectively.

Money Saving Midgets

Cowan Centrifugal Pulp Screens by
APPLETON MACHINE COMPANY

Added efficiency, greater economy are the watchwords for *Appleton Machine Company's* junior versions of the standard Mark "A" Cowan Centrifugal Pulp Screen, acknowledged as outstanding in its field.

The Mark "E" Screen is a half-sized model of the standard Mark "A", conservatively rated at a capacity of 2400 U.S.G.P.M. accepted stock. 50 h.p. is required to operate the Mark "E", but its drive is designed to accommodate a 60 h.p. motor, wherever needed. The Mark "E" is particularly advantageous in smaller mills, or as a supplementary screening unit. Also, installing two Mark "E" Screens—instead of a single larger machine—provides a definite safety factor in case of breakdown.

The "Junior" Screen is a quarter-sized model of the big Mark "A", with a rated capacity of 1400 U.S.G.P.M. accepted stock. 25 h.p. operates the "Junior" Screen, but it will handle motors up to 40 h.p. Greatest applications are as secondary screening units, and as a primary screen for mills producing a variety of pulp grades which require a system made up of small, separate units.

Performance of these two Cowan Screens is comparable in every way to that of the standard Mark "A" Screen . . . the same high consistency screening . . . low percent rejects . . . good fiber separation . . . low shower dilution pressure . . . top hydraulic efficiency. Typically sound *Appleton Machine* construction plus a protective coating tailored to fit your needs *complete* your assurance of long-time satisfaction.

CUSTOM-BUILDERS OF PULP & PAPER MILL MACHINES
WINDERS • FINISHING ROLLS • REWINDERS

Not all basic corn products . . . like those shown above . . . will *always* cooperate perfectly. Sometimes they act up and a way must be found to make them behave. Thus, corn's uses multiply.

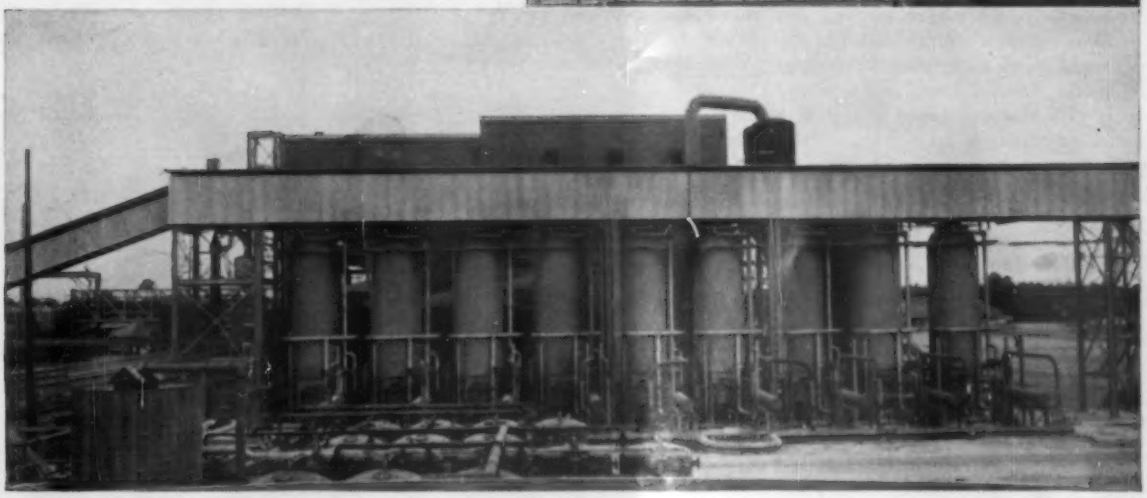
At your request, and at no obligation to you, the skilled technicians and modern laboratory equipment of the Anheuser-Busch Corn Products Research Section will welcome the opportunity to give your particular problem the immediate and individual attention it deserves. Anheuser-Busch has been successful in the past in lending a helping hand to its many friends. Perhaps it can be of future service to you, too!

Address all inquiries to:

ANHEUSER-BUSCH, INC.
CORN PRODUCTS DEPARTMENT
ST. LOUIS, MO.

CORN STARCHES • GUMS • DEXTRINES

This DIGESTER went to work at FOLEY, FLORIDA



for the BUCKEYE CELLULOSE CORPORATION

Yes, this digester joined eight other clad steel digesters —all precision-fabricated by Graver—for the great $25 million plant of Buckeye Cellulose Corporation, subsidiary of Procter & Gamble.

These huge vessels, all equipped with solid stainless strainers and interior fittings represent the ultimate in digester craftsmanship.

In addition to digesters, Graver builds alloy, stainless and carbon steel tanks, as well as clarifiers, for the paper industry.

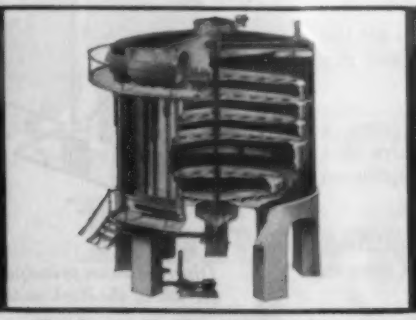
GRAVER ... *fabricators to the paper industry*

GRAVER TANK & MFG. CO., INC.

East Chicago, Indiana

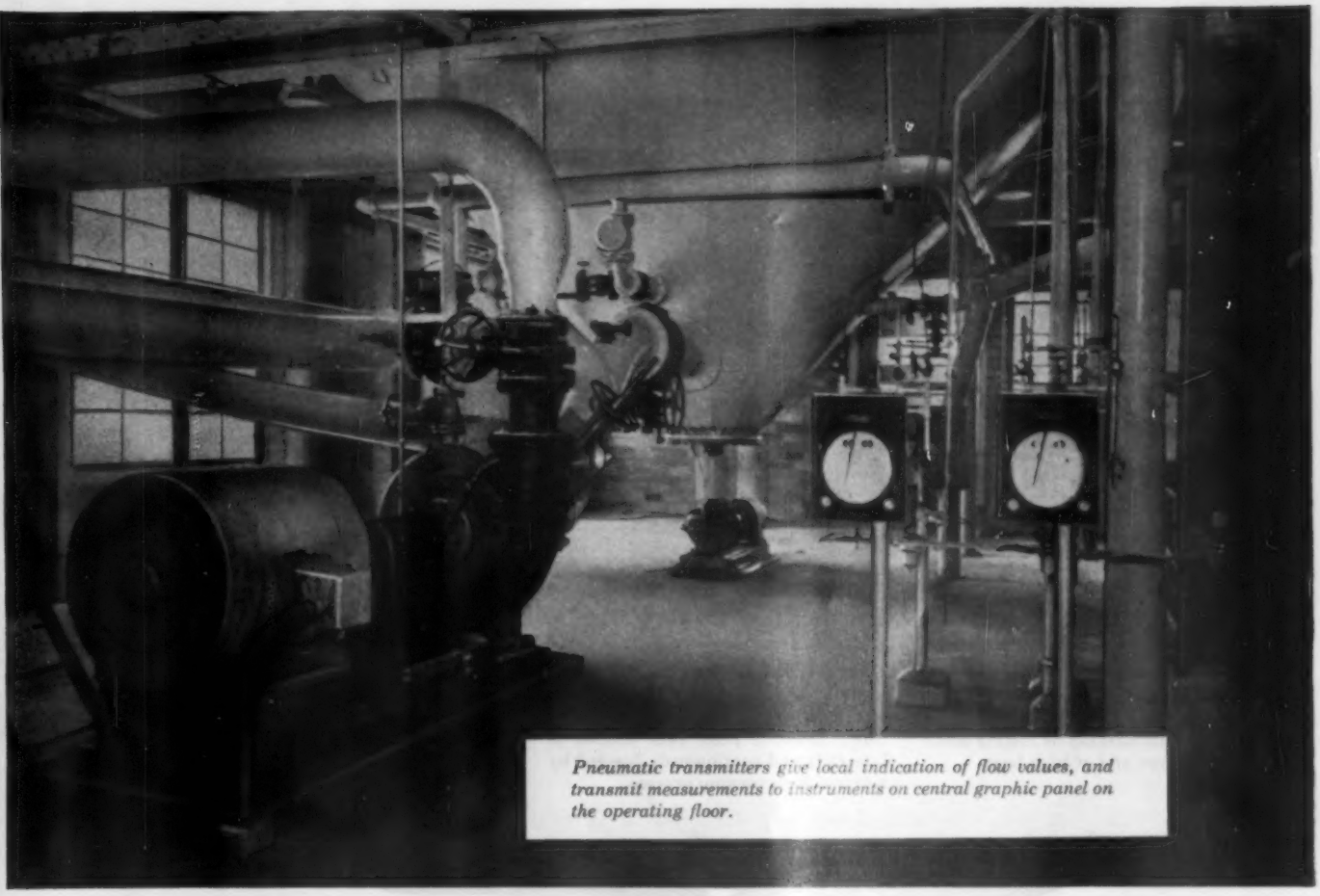
CHICAGO • NEW YORK • PHILADELPHIA • EDGE MOOR, DEL. • ATLANTA
CATASAUQUA, PA. • PITTSBURGH • CLEVELAND • DETROIT • TULSA • SAND SPRINGS, OKLA. • HOUSTON • ODESSA, TEXAS • CASPER, WYOMING
LOS ANGELES • FONTANA, CAL. • SAN FRANCISCO

Stainless-clad sulphurous acid tank.



The Graver Clarifier fills a need in your recausticizing system.

Carbon steel tank for calcium bisulphite cooking liquor.



Pneumatic transmitters give local indication of flow values, and transmit measurements to instruments on central graphic panel on the operating floor.

control of complete washer line

SIMPLIFYING process operation and saving time of supervisory personnel were two of the main objectives, when West Virginia Pulp and Paper Company installed new washer lines in the Charleston, S. C. mill. Old equipment was replaced with three lines of three single stage Impco vacuum washers. And as an important phase of the modernization program, custom-engineered Brown control instrumentation was installed on each line.

The control system is designed so that the operator needs to adjust *only one knob* to change rate of flow of stock through the complete washer line. All elements of the control system are interlocked. A change in the flow of unwashed stock into the line causes corresponding changes in flow of water or filtrate to each stage shower, and in levels of the stage filtrate tanks.

The complete instrumentation covers every phase of process operation. Designed by Brown's paper industry specialists, it includes indicating transmitters spotted at the washers for on-the-spot checks . . . individual operating consoles . . . and a graphic control panel that centralizes data on all critical variables in easily understood visual form. The ability of Honeywell to supply not only all essential types of instruments . . . for flow, liquid level, temperature and stock consistency . . . and also the engineering know-how to coordinate these into an integrated system . . . gives the mill undivided responsibility for the entire job.

Your local Honeywell sales engineer will be glad to discuss how instrumentation can fit into your own modernization program. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.

● **REFERENCE DATA:**
Write for Bulletin 2802, "Instrumentation for the Paper Industry."

MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS
First in Controls

Lukens Steel Corp., Coatsville, Pa., makes Lukens Inconel-Clad Steel to combat digester corrosion. Inconel is clad to a steel backing by rolling under great pressure and at high heat.

Chicago Bridge & Iron Co., Chicago 4, fuses corrosion-resisting Inconel to a steel backing to make HORTONCLAD steel. The bi-metallic plate thus formed is integrally and continuously bonded by a special high vacuum process.

A. O. Smith Corp., Milwaukee 1, Wisc., uses its exclusive SMITHLINING, a closely controlled resistance welding process, to inseparably bond the Inconel lining to a carbon steel backing to provide corrosion resistance and strength.

All 3 Methods offer economical ways to get

Inconel Protection for sulfate digesters

Sulfate pulping liquors in the modern mill often show little respect for mild steel digesters.

One big mill, for example, had eight steel digesters. The average corrosion rate figured out at 62 mils per year.

That was much too high. So they started looking for a more satisfactory material. Their final selection? Inconel® — because of its resistance to both corrosion and stress corrosion cracking.

To save unnecessary expense, the new digester was made of Lukens Inconel-Clad Steel. (Inconel cladding is 10 to 20% the thickness of the steel plate to which it is bonded. There is a worthwhile saving in cost, yet no sacrifice in strength or corrosion resistance.)

After 4 years of use, this Inconel-Clad digester shows no measurable corrosion. It's still too early, of course, to hazard a guess on how long the digester will eventually last. But so far everyone is well satisfied with its performance.

This is not an isolated case. A recent study by the Tappi Digester Corrosion Subcommittee in 12 mills substantiates the findings of the continuing corrosion tests made by several mills in cooperation with our Corrosion Engineering Section for over 10 years.

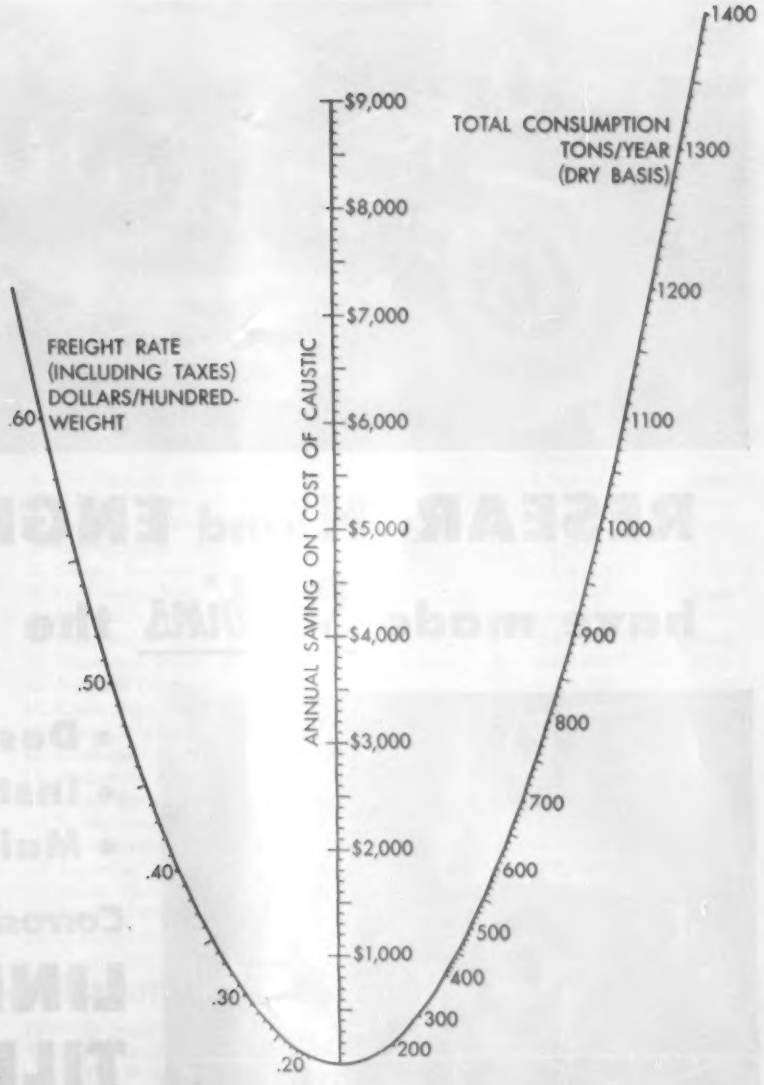
Shown here are three methods of securing Inconel protection against alkaline pulping liquors—SMITHLINING, HORTONCLADDING, and LUKENS-CLAD. Although they are fabricated by different techniques, they offer the same long-lasting protection of Inconel. All three have been tried and proven in use. If you are troubled by accelerated digester corrosion, at least *one* of these methods of getting "Inconel protection" will be an answer.

Expert help with the planning of a new alkaline digester is available. Write to the companies mentioned in this advertisement, or to Inco's Corrosion Engineering Section. We'll be glad to give you all the help we can.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

INCO TRADE MARK **Nickel Alloys**

Inconel... for longer life



Which saves you more... **50% or 73% Caustic Soda?**

This nomograph can help you decide Are you using the caustic solution that's least expensive for you? A few seconds' calculation with this nomograph will help you decide.

How to find if you can save on 73% caustic soda Simply draw a line from your freight rate (including taxes) to your annual consumption in tons on a dry basis. Your approximate savings will appear where this line intersects the center line of the nomograph.

This figure represents your savings on freight charges after the $2.00 premium price on 73% caustic soda has been deducted.

From this figure you must deduct a depreciation charge based on the cost of dilution equipment. Your Hooker technical service man is ready to advise you on the equipment needed and its cost.

Double-check your findings this way Before you make a final decision on 50% or 73%, give yourself the advantage of expert technical advice. Let your Hooker technical service man show you what equipment you will need for 73%. He will figure your exact savings—based on a realistic study of your operations.

For quick service, write or phone the nearest Hooker office.

"CAUSTIC SODA BUYER'S GUIDE" is the title of a new pocket-size booklet we'll be glad to send you free. Contains helpful facts on the economics of 50% and 73% solutions; other forms of caustic soda; capacities of tank cars and other containers; useful shipping information. Write us for a copy.

HOOKER CHEMICALS

1905—Half a Century of Chemicals
From the Salt of the Earth—1955

HOOKER ELECTROCHEMICAL COMPANY

2 Union Street, Niagara Falls, N. Y.

NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

Stebbins research laboratory and engineering offices. Watertown, New York

RESEARCH and ENGINEERING have made Stebbins the World Leader

- **Designing**
- **Installing**
- **Maintaining**

Corrosion - Resistant

LININGS and TILE TANKS

The experience of practically all companies in the pulp and paper industry proves that it will pay you to put your corrosion-resistance problems in the hands of Stebbins specialists. Complete service, from original design to year-round maintenance. Get the facts.

Write for Bulletin A-153

SINCE 1884
Specialists in Design, Installation and Servicing of Linings and Tile Tanks

SEMCO

STEBBINS

Engineering and Manufacturing Company, Watertown, N. Y.

STEBBINS ENGINEERING CORP. — 1504 TOWER BLDG., SEATTLE, WASH.

CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — CASTLE BLDG., MONTREAL, CANADA

Crossett Leads South in Safety

Big 800-ton Arkansas mill shows way with perfect record.
Fifty-nine Dixie mills cut injury rate to 7.32

JIM HAIR, Crossett Paper Mills Mgr.—mighty proud of his staff for perfect safety record.

• Three of the 59 member mills of the Southern Pulp & Paper Safety Association went through 1954 with a perfect safety record, all the more remarkable because they totalled up more than 2 million man-hours exposure.

These are Crossett Paper Mills, Buckeye's Memphis cotton linters mill and Certain-teed Products at Savannah.

Being the largest, the Crossett mills, with a 10-digester pulp mill, 2 Fourdrinier machines (one pushed to record kraft paper speeds recently), and capacity of 800 tons, was naturally recognized as the 1954 "champion."

Mill Mgr. James C. Hair, Safety Director R. E. Bell, other executives and safety committees get credit for the honor.

Ecusta Paper Division of Olin-Mathieson and Sonoco Products were next best. All 59 mills had a 7.32 frequency rate, down from 8.25 in 1953, and 9.78 in 1952. Under 6.0 were 27 mills and 42 were under 10.0.

But lowest was a 22.64 bad record in a mill with less than 500,000 hours, and there were 8 mills with frequencies over 16.0. Here are the 21 under 5.0:

How They Finished in South

	Man-Hours Exposure	*Frequency Rate*
1. The Crossett Paper Mills	1,599,737	0.00
2. Buckeye Cotton Oil, Memphis	1,210,314	0.00
3. Certain-teed Products, Savannah	461,667	0.00
4. Ecusta Paper Corp.	2,478,068	1.21
5. Sonoco Products Co.	3,124,827	1.28
6. Gulf States Paper Corp.	3,429,043	1.45
7. Champion Paper, Canton, N.C.	6,006,832	1.49
8. Scott Paper (H&W Div.), Mobile	2,431,089	2.05
9. Champion Paper, Pasadena, Tex.	3,139,600	2.23
10. National Container, Big Is., Va.	428,385	2.33
11. Coosa River Newsprint Co.	1,780,473	2.81
12. Camp Mfg. Co.	1,345,983	2.97
13. Flintkote Co., Meridian, Miss.	987,961	3.04
14. Brunswick Pulp & Paper	1,471,561	3.39
15. Mead Corp., Kingsport, Tenn.	2,970,970	3.70
16. International, Moss Pt., Miss.	3,539,010	3.96
17. International, Camden, Ark.	2,447,360	4.09
18. Rayonier, Inc., Jesup, Ga.	728,364	4.12
19. North Carolina Pulp Co.	2,121,160	4.24
20. Kimberly-Clark Corp., Memphis	2,546,498	4.35
21. National Container, Valdosta, Ga.	1,097,505	4.56

Around and Around—at Kalamazoo

Dick Trelfa, technical director of Watervliet Paper Division-to-be of KVP Co. (merger being completed), a company which has had considerable experience in coating, was described as "the ringmaster" in what the program called a Graphic Arts Circus at Kalamazoo Mar. 3 and the gentlemen shown in the accompanying picture were in the various "rings." Printers and suppliers got together with TAPPI-ites and other papermakers. James A. Dean, Michigan Paper tech. dir., was TAPPI section chairman.

The many variables that affect publishing, paper quality, presses, inks, etc., all came in for praise and criticism, and the difficulties of locating blame were revealed. Narrower tolerances are now demanded, but it was agreed less paper is rejected than ten years ago and press performance is better. In paper quality control, it was indicated a need today is for direct measures for controlling sheet qualities that influence printed results (for an interesting Time-Life report on printing paper variables see PULP & PAPER, March issue, page 64).

R. W. Wilkerson, of Minerals & Chemicals, emphasized quality needs of advertisers, and said "slick" paper magazine advertising lineage has doubled since 1946, now represents $420,000,000.

Proof of Action at Kalamazoo
Sometimes the fur began to fly, sometimes it was funny, but the Graphic Arts Conference sponsored by Kalamazoo Valley's TAPPI Section was at all times very stimulating. Here's proof of action (l to r): HARRY HADLEY, Asst. Gen. Plant Mgr., Gardner Board & Carton, and JOHN LANGMAID, Head of Division for Precision Manufacture, S. D. Warren, who spoke for papermakers; BOB WILKERSON, Sales and Adv. Promotion Mgr., Minerals & Chemicals Corp. of America, who spoke for advertisers; ABE LEWENSTEIN, Tech. Director, Appleton Coated Paper Co., who spoke for technical men and converters; and DWIGHT MONACO, Asst. Vice Pres., McGraw-Hill, who spoke for printers.

PULP & PAPER

What's New in the World of Woodpulp

Noticias Mundiales de la Industria Pulpera

EDITORS NOTE—

Worldwide commerce in woodpulp is setting new patterns as well as new records. Woodpulp has become a billion dollar commodity in world trade.

As a service to hundreds of subscribers to PULP & PAPER in other countries, we are now publishing our world pulp news in both Spanish and English on these pages.

HIGHER OUTPUT FROM SWEDISH MILLS—It is expected that the Swedish cellulose exports to the United States exceeded 200,000 tons for 1954, the **Swedish Timber Journal** writes in its latest survey. The cellulose exports to Great Britain in the January-July period—297,500 tons—were approximately 50% larger than last year.

The 1954 total production of chemical pulp in Sweden is at least 300,000 tons larger than last year's, partly because of the great demand, partly because several mills have adopted a 7-day week. The output of chemical pulp of all kinds rose to about 2,800,000 tons for 1954, about 750,000 tons being for consumption at integrated paper mills and 2,000,000 tons for sale.

The output of mechanical pulp reached a higher level than in any previous post-war year, consequently also exceeding the 1951 figure of 778,000 tons.

This Swedish journal said: "Wood pulp buyers in the American market were said to be taking out the full quantities reserved but it is as yet impossible to say whether 1955 purchases will be as large. It must be remembered that the capacity of the North American pulp industry has been much increased lately, more especially in respect of the bleached qualities, which has resulted in a surplus of production, part of which has been offered also in the European markets. This may possibly be a temporary state of affairs, as the consumption of paper and viscose products is steadily rising in the United States and is expected gradually to catch up with the present output of cellulose. But until a balance is attained, the Scandinavian producers must meet its competition not only in the U. S. A., but also in the European and other markets. The American cellulose exports are expected to exceed 300,000 tons for 1954, compared with 162,000 tons in 1953 (of which 54,000 went to the U.K. and the rest of Europe) and 212,000 short tons in 1952. In several European countries the possibility of payments in dollars has improved this last year, leading to increased readiness to buy American pulp."

CHILE, EXPORTER OF PULP BY 1965?—There are large forests of good pulp quality in Chile and most industry visitors have said they think Chile has a bright future as a pulp and paper producer. Its development has been slow. The big projects for a 47,000 tons per year kraft pulp mill and a 44,000 tons per year newsprint mill are still under construction. It is expected they will be completed in 1956 and 1957. They are being built principally by a $20,000,000 International Bank loan, negotiated by the Chilean Development Corp.

MEXICAN MILL SCHEDULED TO START IN MAY—"Celulosa de Chihuahua," S.A., a new pulp mill in that state in Mexico, is due to start production in about May. Previous reports were that this mill still was being engineered to make high alpha or dissolving grades of cellulose. It had 50% government financing. Snia Viscosa, Italian firm, is engineering the project.

Hoy día en el comercio mundial de pulpa se están realizando grandes cambios, al mismo tiempo que dicho comercio aumenta notablemente. El valor de la pulpa como artículo de comercio mundial ya asciende a mas de 1.000.000.000 dls.

Con el anhelo de mejor servir a nuestros muchos lectores, mensualmente publicamos nuestras noticias mundiales en espanol e inglés.

PRODUCCION EN SUECIA—Se calcula que la exportación de celulosa de Suecia a los E.U. llegó a mas de 200.000 toneladas en el año 1954, según la revista Swedish Timber Journal. La exportación a la Gran Bretaña durante los meses de enero a julio fueron 297.500 toneladas, aproximadamente 50% mas que el año anterior.

La producción de pulpa química de Suecia se dice que es por lo menos 300.000 toneladas más que la del año anterior, lo que se debe en parte a la fuerte demanda y en parte a que en varias fábricas ahora se trabaja siete días por semana. La producción de pulpa química de todas clases subió a cerca de 2.800.000 toneladas en 1954, de las que 750.000 se consumieron en fábricas de papel asociadas con las productoras de pulpa, y 2.000.000 de venta.

De pulpa mecánica, la producción aumentó a la mayor cantidad desde el fin de la guerra, sobrepasando et total de 1951 que fué 778.000 toneladas.

Dijo la revista: "Se dice que los compradores de pulpa en E.U. se estaban valiendo de la entera cantidad apartada, pero no se puede decir hasta ahora si las compras por 1955 resultarán tan grandes como antes. Se ha de notar que la capacidad de consumo de la industria pulpera norteamericana ha aumentado mucho ultimamente, especialmente de grados blanqueados, lo que ha resultado en sobreproducción de la cual parte se les ha ofrecido a los mercados europeos. Puede ser que esta situación no sea terminante, pues el consumo de productos de papel y viscosa va aumentando continuamente en E.U., y pronto o tarde se igualará con la producción de celulosa, con tal que la situación general siga favorable y la capacidad productiva no aumente como ha aumentado en recientes años.

"De todas maneras, hasta que se ponga al par la situación, los productores suecos tendrán que encontrarse con competencia en los mercados no solo norteamericano sino europeo y otros. La exportación de productos celulósicos de E.U. serán quizá más de 300.000 toneladas en 1954, comparándose con 162.000 en 1953 (de que cantidad 54.000 toneladas se enviaron a Europa y las Islas Británicas) y 212.000 toneladas en 1952. En varias naciones europeas se ha facilitado pagar en dólares, lo que las dispondrá más a comprar pulpa norteamericana."

CHILE EXPORTADOR EN 1965—En Chile hay grandes existencias de madera de buena calidad para pulpa, y muchos viajieros peritos declaran que la nación tiene gran promesa como productora de pulpa y papel. Sin embargo la industria chilena se desarrolla lentamente. Dos grandes proyectos para fábricas de 47.000 toneladas anuales de pulpa kraft y 44.000 para periódico todavía están construyéndose, esperándose terminarlas en 1956 y 1957. Dichas plantas se están edificando con ayuda de un préstamo a valor de 20.000.000 dls. del Banco Internacional, negociado por la Chilean Development Corporation.

EN MAYO SE ESTRENARA UNA FABRICA MEXICANA—La Celulosa de Chihuahua, México iniciará la

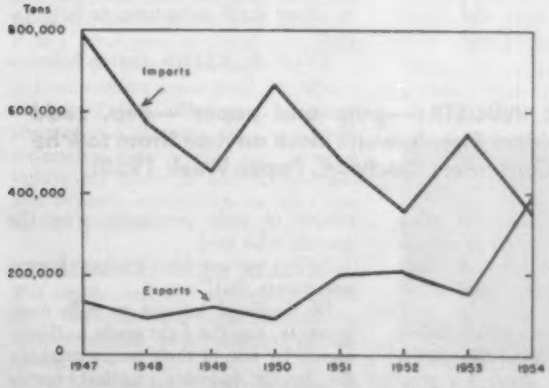
NEW BY-PRODUCT OF SULFITE INDUSTRY—A new 5-story sinter (iron dross) plant, first of its kind in the world, is producing iron oxide from pyrite ashes at the Mo and Domsjo sulfite pulp mill at Alfredshem, North Sweden. This mill buys powdered pyrites from a mining company to produce cooking acid by extracting sulfur through roasting. By the new process, the dusty ash which remains is converted into a coke-like product that is sold to iron works for their use. The process was developed by Boliden Mining Co., and the new machine was invented by O. Rolfson, of Oslo, and built by Cellco A.B. of Uppsala, Sweden.

RICE STRAW PAPER MADE IN HUNGARY—A new mill at Szolnok, Hungary, is reported successfully making a paper of great tensile strength from rice straw. It is said to supply 2% of Hungary's paper requirements.

HIGH ALPHA CELLULOSE PLANT FOR SOUTH AFRICA—Snia Viscosa engineers from Italy are working on construction of a dissolving cellulose mill at Umkomaas, near Durban, South Africa. Using eucalyptus wood, it is designed to make over 40,000 tons a year. Industrial Development Co. of South Africa, Courtaulds Ltd. of England and Snia Viscosa are joint promoters; the former two companies plan to use the pulps for rayon and acetate products. It is scheduled for completion this year.

HAWAII STILL STUDIES PULP AND PAPER—One of the biggest supplies of sugar cane bagasse in the world, in Hawaii, might still be a source for paper or for market pulp. Frederick Simplich, Jr., vice president of Castle & Cook Ltd., is touring U.S. and Canada, talking with engineers, research men, market executives, etc., regarding equipment, engineering and other factors. He represents the Hawaiian Sugar Planters' Association. William Robinson, former technical director at Mexico's Atenquique mill and U.S. mills, is pulp and paper technologist for the association. Mainland markets would be required to make it practical.

RUSSIA IN THE MARKET—Soviet Russia figures recently released show cellulose imports of 16,000 metric tons, mechanical pulp imports of 11,300 tons and cellulose exports of 24,000 tons in 1954.



U.S.A. Woodpulp Exports to all Countries and U.S.A. Woodpulp Imports from Europe Only

This chart by American Paper & Pulp Assn. shows U.S.A. woodpulp exports hitting an all-time high of close to 400,000 tons last year, while U.S.A. imports from Europe hit a post-war low close to 350,000 tons.

fabricación de pulpa en mayo siguiente. Según noticias anteriores, la fábrica producirá celulosa alfa o de grado soluble y se edificaba con fondos 50% del gobierno. Snia Viscosa, firma italiana, se encargaba de la ingeniería.

NUEVO SUBPRODUCTO DEL SULFITO—Una fábrica nueva, primera del mundo, localizada en la planta Mo y Domsjo, Alfredshem, Suecia, está produciendo óxido de hierro utilizando cenizas de pirita (sulfido de hierro o cobre). Utilizando pirita comprada de una compañía minera, se extrae el cobre a base de calefacción y se fabrica ácido para tratamiento. La ceniza que resulta se convierte en una substancia semejante al coque y se vende a los talleres de hierro. La Boliden Mining Company desarrolló el proceso y Sr. O. Rolfson de Oslo inventó la máquina, que la fabricó la Cellco A.B. de Uppsala, Suecia. Con las entradas realizadas por la venta de los subproductos se reduce el costo de la producción de la pulpa.

EN HUNGRIA SE FABRICA PAPEL DE ARROZ—Se reciben noticias de que una fábrica en Szolnok, Hungría, esta produciendo con éxito un papel de gran resistencia a la tracción, a base de paja de arroz. Según las noticias, dicho papel satisface el 2% del consumo del país.

PRODUCTORA ALFA CELULOSA EN SUD AFRICA—Ingenieros italainos de la Snia Viscosa progresan con la construcción de una fábrica de celulosa soluble en Umkomaas, cerca de Durban, Sud Africa. Se producirán 40.000 toneladas anuales, untilizando madera de eucalipto. Los empresarios son la Snia Viscosa, Industrial Development Company de Sud Africa y Courtaulds Ltd. de Inglaterra; las dos últimas usarán las pulpas para fabricar rayón y acetato. La fábrica se terminará este año

SIKUEN ESTUDIOS EN HAWAI—Una de las mayores fuentes del mundo de bagazo de caña, en Hawai, podrá ser la base de gran producción de papel o de pulpa para venta. Sr. Frederick Simplich h., vice-presidente de Castle & Cook Ltd., actualmente está de viaje por los E.U. y el Canada, consultando con ingenieros, científicos, expertos en mercados y otros tratando de equipos, ingeniería y otros puntos a propósito, en representación de la Hawaiian Sugar Planters Assn., asociación de cultivadores de azúcar de Hawai. La asociación tiene como técnico encargado de pulpa y papel al Sr. William Robinson que anteriormente fué director técnico de la fábrica de Atenquique, México y de plantas en E.U. Para ser factible semejante proyecto en Hawai, sería necesorio realizar mercado en el continente norteamericano.

LA URSS COMPRA Y VENDE—Según informes de reciente fecha, e la Unión Soviética se hicieron en 1954 importaciones de 16.000 toneladas métricas de celulosa y 11.300 toneladas de pulpa mecánica, mas exportaciones de 24.000 toneladas de celulosa.

Exportación de Pulpa Leñosa de E.U.A. a Todo el Extranjero e Importación a E.U.A. de Europa

Según esta carta elaborada por la American Pulp & Paper Association, se ve que las exportaciones de pulpa leñosa de E.U.A. ascendieron en 1954 a 400.000 toneladas, mayor cantidad que jamás se ha registrado. Al mismo tiempo las importaciones de Europa a E.U.A. decayeron a cerca de 350.000 toneladas, el punto más bajo desde el fin de la guerra. No se incluyen aquí las cantidades importadas del Canadá, que siguen fuertes.

These Pictures Bring Back Moments of 1955 Paper Week

DON LESLIE (left) of Hammermill, President of APPA, took a conservative position on tariffs.

But speaker at right, J. D. ZELLERBACH, came all way from San Francisco to make vigorous plea for virtually free trade.

In the middle, REUBEN ROBERTSON JR., Champion Paper, First Vice Pres. of APPA, who is due to take over its leadership in 1956, appears to be listening non-committally. Another grave face can be seen under the dais—at extreme right—that of J. B. FAEGRE of M & O Paper.

What Leaders Say About Tariffs

"Remove them all and we'll grow bigger than ever," says JDZ. PULP & PAPER reports reactions of many others.

• For the first time in its 78-year history, the American Paper & Pulp Association is not opposing tariff reduction.

This was a fait accompli even before J. D. Zellerbach made his vigorous plea for free trade at Paper Week.

The industry is giving reserved support to the Randall Commission report, which its tariffs task committee helped formulate, and which calls for a true "two-way street" in reciprocal trade concessions with other countries, keeping interests of the U.S.A. foremost.

Although Mr. Zellerbach said this industry historically opposed tariff change, he was talking only of the past—for this year it is not opposing President Eisenhower's program. However, as Mr. Zellerbach himself said, paper and board tariffs already have been reduced two-thirds since 1930, and this industry takes the official position that it has done more than its share.

Many industry leaders who heard Mr. Zellerbach told PULP & PAPER they agreed with him in principle.

"But it is when you get down to particular cases and companies, many of them much smaller than Crown Zellerbach, and some of them in one-industry towns—that is when each individual case and the jobs and welfare of thousands of families, must be given fair consideration."

That statement is a composite of off-the-cuff comments PULP & PAPER gathered from top management men who heard him. Reductions should be gradual, extended over 10 to 20 years, several said.

One leader said Mr. Zellerbach's plea might better have been directed at other industries. Another contended that Canada particularly, and other nations, would be expected to reduce their tariffs but doubted if they would. A third said foreign cartels also should be abolished.

"THE MIRACLE INDUSTRY—pulp and paper"—Rep. Judd (R. Minn.), President Eisenhower's close advisor (from talk he made at Pulp Consumers luncheon, Paper Week 1955).

The data Mr. Zellerbach marshalled impressed many listeners. Especially, when he drew facts from his own long personal experience as a leading newsprint manufacturer, to establish that industry thrives on free trade.

One member of the industry tariff committee told PULP & PAPER: "Many of us will agree with J.D. that tariffs and trade barriers may undercut our foreign policy and may even drive countries like Japan into the Communist camp. But it is not paper tariffs that are doing this, and certainly not pulp or newsprint, which come in free."

Mr. Zellerbach pictured Japan near economic ruin. "We are prepared to fight for Formosa—we ought to be able to afford tariff reductions to help Japan!"

PULP & PAPER button-holed a couple of pulp producers after the speech, who said:

"Why, we are free traders. Everyone knows that!"

Of unofficial interest to pulp men, however, was the fight made in Washington by one of their major markets, the textile industry, against textile tariff reduction. However all the major firms are now actively in world trade. Said one top executive:

"As to the President's request for authority to reduce tariffs, we are strictly neutral. Operating on a world-

wide basis, we are interested only in the volume of consumption of our products for all purposes."

One paper executive added fuel to the free trade fire. He said: "J. D. might have pointed out that tariff-protected Northern specialty mills, now have worse to fear at home—the increasing specialization of Southern paper mills, constantly upgrading their paper."

HOW MUCH IS "NEGLIGIBLE?"—E. W. Tinker, for APPA, wrote Sen. Byrd (D., Va.) that the paper industry generally approves House Resolution No. 1 except the provision permitting the President to reduce by 50% duties on any article normally imported in "negligible" quantities. Mr. Tinker said either this should be stricken from the bill, or "negligible" be changed to "inconsequential" or the amount determined on basis of any domestic producer's viewpoint. To some government officials, "negligible" could mean "millions."

WHAT OTHER SPEAKERS SAID—A lot was said on tariffs at Paper Week.

Don Leslie, president of APPA, backed the Randall report and the conservative "go slow" position of the industry.

Another industry executive who has had close contacts in Washington said tariff reductions surely are coming—but, he feared, without much reciprocity.

Gabriel Ticoulat, v. p. of Crown Z, who made three major speeches before three associations, was enthused over business prospects he found in Europe, and backed his chief for free trade.

The "corn-hog" farmer, Allan B. Kline, who was the orator of the big APPA dinner, said "we must recognize trade should be in our own interests; it is a vital part of world politics; a weapon to protect freedom."

Even Congressman Judd (R., Minn.) at the Pulp Consumers luncheon, stressed the dangers of a gradually narrowing free world, and touched lightly on trade as well as political and military constriction as the Communist program.

ZELLERBACH GOES ALL OUT—But no one said as much about tariffs as J. D. Zellerbach, who amiably describes himself as a reformed protectionist.

As barriers have been lowered in past years, he said, the pulp and paper industry has grown stronger. It would really go places in a free trading world, he said.

Most effective part of the Zellerbach address was when he made

Technical Talk in Commodore Corner

Left to right: JOHN ZIMMERMAN, Division Mgr. for Champion Paper & Fibre Co., Hamilton, O.; GEORGE S. JOHNSTON, Mgr. of Paper Cup Plant of Continental Can Co., Newark, N.J., and HERBERT T. RANDALL, Vice Pres. and Director of Research and Engineering, Champion, Hamilton.

newsprint his case history—his company is the second biggest producer in U.S. and despite free Canadian competition (Canada is the only nation with a newsprint tariff), Crown Z has increased its newsprint capacity in the U.S. from 170,000 to 215,000 tons annually in 30 years. Crown Z also makes newsprint in Canada.

Mr. Zellerbach said while tariffs were reduced on paper and board by two-thirds since 1930, dutiable imports increased from only 0.5% to less than 1.0%. He contended American industry has become too strong, too competitive, to be hurt even if all tariffs were removed.

J.D.Z.'s THREE CONCLUSIONS—The U.S. woodpulp industry and Southern newsprint, he said, have grown strong without benefit of tariffs. Foreign competition makes industries more efficient and stronger. On this point, he drew these conclusions:

1. Competitive adjustments from foreign competition are basically no different than from domestic competition. Southern newsprint producers who won the struggle with Canadians, would sooner or later have had a similar struggle with U.S. competitors.

2. Competition from abroad stimulates U.S. mills to improve and diversify their products. Perhaps no U.S. industry faced more intensive foreign competition than newsprint. Yet it emerged stronger. Foreign competition served the same beneficial purpose as domestic.

3. An expanding economy is good for us all; a contracting economy is bad for us all. In 13 years after U.S. newsprint tariffs were removed, U.S. newsprint had already expanded 29%—then, he said, the real difficulty came from a depression, not the tariff, and even kraft paper sold below newsprint.

Two Research Leaders at Commodore

W. H. SWANSON (left), Vice President of Kimberly-Clark Corp., and WALTER F. HOLZER, Asst. to Mfg. Vice President of Crown Zellerbach, find common interests in pulping research and developments.

"WE SELL EVERYONE—WE SUFFER WITH EVERYBODY"—"In a contracting economy, our industry suffers with everybody, because we sell paper to everybody," he said.

He made an interesting point of "indirect paper and board" exports—those required for packaging, parts of finished products, etc. If U.S. exports declined by one-half, pulp and paper exports would decline $100,000,000, and its indirect exports would decline another $32,000,000. Both will increase, if imports increase, he said.

In Italy, where he was U.S. aid administrator, he saw American products "dumped" in traditional Italian markets, while Italians were prevented from selling us. The commies "exploited" this, he said.

"We are at the crossroads—we must choose whether to lead the free world to widening markets and expanding production or let it lapse into intensified economic nationalism and political division."

"Post Mortem" on Lively Paper Week

Brightness Worries—More Coating—Noise Abatement—APPA-NPA Merger?—Surprised Guy—Pollution Project

HIGHER BRIGHTNESS TREND WORRIES LEADERS—The "express train" trend toward higher brightness pulp and paper has a lot of industry leaders worried. At Paper Week, several complained that paper manufacturers are "batting each other over the head" with the use of the new higher brightness pulps and fillers and white fluorescent dyes, and no one is particularly benefiting.

"The high brightness tends to increase costs, and from an end-use standpoint, may not be any better," said one leader. "There tends to be more glare. Opacity usually is lower and the cost is still increased further to take care of that. Your magazine reported last month that 30 chlorine dioxide plants are coming in, so we are sure going to have higher brightness and more of it."

But others asserted the industry could benefit if some standards were set up; if some overall industry statesmanship would control it to some extent, without the violation of any trade laws.

MORE COATING COMING—WHAT ABOUT TELEVISION?—Coating of paper is the No. 1 great advance in the paper industry. That's generally agreed. Predictions that coating of paper and board will continue at a fast pace, probably doubling by 1960, or sooner, were made to PULP & PAPER by several leaders. But the big jump is going to be in paperboard, also in offset papers. Boxboard coating is expected to increase 500%.

Have the letterpress magazine paper coating mills reached a peak in their market? Are all the magazines that can afford to use mineral surface papers doing so? It is admitted that price may not permit much increase here. This coated paper production already has increased from 200,000 to 1,500,000 tons in 20 years.

And now we have television! At Paper Week, executives of coated paper mills noted that national advertising on television already has caught up with magazines—$634,900,000 spent in 1954 in magazines; $633,200,000 in television. But of the former figure, only about $400,000,000 is in "slick" paper magazines. Newspapers continue to lead all media in national advertising, with $648,-800,000. Radio was a poor fourth—$267,000,000.

NOISE ABATEMENT—A NEW PROJECT—One of the new special technical studies which will be taken up by the paper industry is noise abatement in the mills. This is especially a problem around big high speed machines. APPA is already getting under way with plans for a committee of experts to go to work on it. Scott Paper is understood to have done considerable research in this field. Those with special knowledge or interests will be asked to serve.

Speaking for APPA, President Don Leslie urged TAPPI members to learn more about:

1. Labor management.
2. Financial problems.

IS FOREST GENETICS GETTING OUT OF HAND?—TAPPI has been urged by APPA leaders to get into studies of forest genetics and the improvement of trees by breeding. Can trees be made bigger and better by hybridization? Polyploid production? Radiation treatment? Can rate of growth, density, fiber length, fiber angle, percent of tree content causing pitch trouble or resistance to disease and insects be altered?

Asked his opinion of such work by PULP & PAPER, one top executive set up a mild howl:

"There we go again, duplicating expensive work and efforts all over the lot. There are several such projects that I know about, already under way—at the Institute of Chemistry, University of Florida, several Forest Experiment Stations and groups working through the Southern Tree Improvement Conference. We need some industry direction here to bring order before we have chaos."

PULP AND PAPER MAY BECOME NO. 1 INDUSTRY

"The pulp and paper industry may become THE LEADING INDUSTRY of this country, because our raw material is a renewable resource."—Statement by DONALD S. LESLIE, President of APPA and President of Hammermill.

Mr. Leslie also said pulp and paper already is THE 4TH BIGGEST INDUSTRY, although some say it is the 5th biggest.

Scott Mergers Brought Them Together

L. to r.: ED. J. GAYNER, President of Brunswick Pulp & Paper, owned jointly by Scott and Mead.
ROBERT I. THIEME, for years Tech. Director of Soundview Pulp Co., now a Scott Division, who recently became Asst. Plant Mgr. of Scott's parent mill, Chester, Pa.
EDWARD P. WOOD, Mgr. of Hollingsworth & Whitney mills at Mobile, now a Division of Scott. He formerly was on West Coast with Weyerhaeuser.

A Rare Moment Caught by P & P Camera

KARL O. ELDERKIN (left), new President of TAPPI, and Vice Pres. and Gen. Mgr. of Bowaters Southern Paper Corp., Calhoun, Tenn., is congratulated by F. L. MITCHELL, Canadian Pulp & Paper Assn. executive. Mr. Elderkin had already made a mark in the high speed Canadian newsprint field before oging to Crossett, Ark, and then, Tennessee.

SURPRISED GUY AT PARK LANE—A lone guest in a Park Lane "hospitality room" during Paper Week temporarily was left alone by his host. Just then a man came in the door and with friendly smile and outstretched hand, exclaimed, "How are you? I'm Phil Weyerhaeuser."

The guest thought he sensed a gag, so just grabbed a name at random. "Glad to know you, I'm Harold Foley." To his surprise he found out that it not only was Mr. W. but that he and Mr. Foley, president of Powell River Co., are very good and old friends.

AUTOMATION IN THE PAPER MILL—It is not entirely a secret in this industry that one big company which has a plentifully-manned engineering staff of its own, and research experts in many diverse fields, is working toward the day when it may come up with a complete pushbutton paper mill. So it was not a surprise to some listeners, therefore, when ALLAN HYER, vice president and "senior statesman" of the expanded Black-Clawson Cos., made an allusion to this approaching development in his talk on automation before the APPA. He said that although automation had not, in its full sense, come to the paper mill, at least one mill was considering the idea and had almost completed details.

MOVE TO MERGE APPA AND PAPERBOARD ASSN.—Progress was made at Paper Week toward a merging of many functions of APPA and the National Paperboard Association—especially where a united industry front is of benefit—and possibly even merging the two, with Paper and Board divisions. WALTER SHORTER, v. p. of Camp Mfg. and spokesman for the joint committee, said in almost all of their activities, the two big associations duplicate their efforts. This is expensive and inefficient.

He also revealed progress in a movement to reorganize the APPA divisions on a more realistic basis according to grades made. "NRA dictated the present out-of-date pattern," he said. "Let's not wait for another emergency, let's get our house in order now."

He pointed out that bleached kraft production has increased 21 times in 20 years, semi-chemical has increased nearly 12 times, and now bleached semi-chemical is coming in. If the old basis for divisions—furnish—continues, there soon must be a Semi-Chemical Division, he said. But he recommended that "markets," not "furnish," are a more realistic and useful basis for organizing APPA divisions.

THOMAS J. BURKE, secy.-treas., Sulfite Paper Mfrs. Association, whose members now use more non-sulfite furnish than sulfite, offered this suggestion for a new name for his division: "Bleached Kraft and Sulfite Wrapping and Converting Papers Association." The APPA divisions face a puzzling problem in semantics.

SEEK TO HOLD EUROPE MARKETS—The biggest news behind the news in the market woodpulp field at Paper Week was the evident decision and determination of the North American suppliers to permanently hold their new markets in Europe. Exports of U.S. woodpulp alone totalled a record 431,000 tons in 1954, and as REED PORTER, executive secy. of the Association of Pulp Consumers, Inc., pointed out, this is 11% of the total domestic market pulp consumption of the U.S.

A year ago market pulp spokesmen, in the cases of some companies at least, dismissed the growing shipments overseas as taking care of expansion until the U.S. demand caught up. No more of that kind of talk was heard at Paper Week. West Europe's demand for pulp is up 45%, Mr. Porter said. A major part of the demand is in Britain. News sales offices abroad and long-term planning with European buyers show that North American exporters are confident and determined to hold the new-won markets. Already plans are under way to meet increasing domestic pulp demand.

The U.S. Pulp Producers named these 19 directors to serve until next February:

Regional directors—N. L. Nourse, Brown Co., for New England; P. H. Glatfelter, P. H. Glatfelter Co., Middle Atlantic; F. H. Savage, International, South; Lyall Stilp, Kimberley-Clark, Lake States; Lawson Turcotte, Puget Sound Pulp, West Coast.

Directors at large—W. F. Bowld, Buckeye Cellulose; A. Calder, Jr., Union Bag; B. R. Cancell, Rhinelander; C. H. Conrad, Rayonier; W. Hamilton, Riegel Paper; Amor Hollingsworth, Penobscot Chemical Fibre; L. K. Larson, Weyerhaeuser; George Olmsted, Jr., S. D. Warren Co.; G. Willing Pepper, Scott Paper John Stephens, Jr., Marathon Corp.; Law-

CHLORINE DIOXIDE BLEACHING got a thorough going-over when this panel met all comers in roomful of interested listeners during TAPPI's session. (l to r) Standing, are W. W. NORTHGRAVES, Olin Mathieson Chemical Corp., Baltimore, Md., A. SCHOLANDER, Asst. to Technical Mgr., Mo och Domsjo AB, Ornskoldsvik, Sweden, WARD D. HARRISON, Vice President in charge of Production, Riegel Paper Corp., CHARLES R. CALKINS, Riegel Paper, Milford, N.J., SIXTEN OLOF REGESTAD, Mo och Domsjo AB, Sweden. Seated (l to r): DONALD H. BAKER, Tech. Director, Pulp Div., MacMillan & Bloedel Ltd., GEORGE M. BRUMLEY, Vice President and Res. Mgr., St. Marys Kraft Corp., St. Marys, Ga., DR. W. HOWARD RAPSON, U. of Toronto, C. E. HARTFORD, Vice President and Gen. Mgr., Riegel Carolina Corp., and ROBERT E. L. WHELESS, Chief Chemist, Camp Mfg. Co.

rence W. Strattner, W. Virginia Pulp & Paper; G. J. Ticoulat, Crown Zellerbach; R. L. Vayo, St. Regis; H. E. Whittaker, Mead Corp.

WHAT DO YOU DO FOR "HOME" READING?—One of the "speeches" supposedly given at Paper Week and published at considerable length at that time was never given. (PULP & PAPER did NOT publish it.) The actual speech that was given bore about as much resemblance to the published one as Peter Pan does to Captain Hook. In fact, the speech was virtually completely opposite in substance and tone to what was published!

TRIBUTE TO CHARLEY SIBLER—In bright-colored hand lettering, a framed scroll was a surprise award during the TAPPI engineering sessions to the retiring Engineering Division chairman, CHARLES SIBLER, chief engineer, West Virginia Pulp & Paper. Mr. Sibler was deeply moved, as he hadn't an idea it was coming and his wife, Mary, and others had to be in the "know." It was a tribute to his success in making the Engineers a "blue-ribbon" division, easily the most productive of all in useful work for the industry. To get over the shock, "BUMPS" HEMPHILL, of Johns-Manville, former secretary of the division; WALT BLOOMQUIST, of General Electric, present secretary; JOHN LYALL, project engineer of Armstrong Cork, the new chairman, and Mr. Sibler's friend from Switzerland, DR. ROBERT THOMANN, of Sulzer Bros., the water removal experts, smuggled him off to a New York Swiss restaurant for lunch. Elaborate intrigue assured Mr. Sibler's presence for the award—a date the night before with Dr. Thomann to be sure he would be there to hear the latter's paper on the Sulzer water system.

NEW TAPPI PROJECT—WATER

"You Takes Your Choice," or: Why Delegates Get Confused

● "You pays your money, and you takes your choice!"

The Paper Week delegate who heard the speeches of Congressman Judd (R., Minn.), the former missionary doctor in China, and Roscoe Drummond, the Washington correspondent of the N.Y. *Herald-Tribune*, had a wide choice. The former spoke at the Pulp Consumers luncheon; the latter addressed the Writing Paper Manufacturers.

Dr. Judd said the Free World has lost 4 rounds of a 10-round fight with Communism and may be losing a 5th. Mr. Drummond said the Free World is winning and the Commies have lost 0 rounds already, and stand to lose a 7th. Here's their scorecards:

JUDD*

Rounds won by Reds

1. Yalta. Won control of Manchuria.
2. China. Because U.S. "became enamored" of Commie agrarian reform propaganda.
3. Korea. Because U.S. "decided not to win."
4. Indo-China. Because French failed to grant independence.

Undecided:

5. Formosa. "But even a cease fire here would permit China to move into Southeast Asia without interference—then to Arabia, Africa."

* Dr. Judd did not count them as rounds, but he conceded that U.S. did win points in Guatemala, Greece and Berlin.

DRUMMOND

Rounds won by Free World

1. Reds lost domination of Yugoslavia and control of North Korea to Chinese.
2. Reds failed to get Greece and South Korea.
3. Turks refused to permit Red troops on their soil.
4. Reds failed to drive U.S. from Berlin.
5. Red influence weakening in France and Italy.
6. Remarkable economic recovery of Europe—"greatest single setback to Reds."

Undecided:

7. Formosa. "U.S.'s 'reserve declaration of war' makes clear we will fight. It was most significant break in Western diplomacy practice since 1911."

Mr. Drummond said the world is nearer security than any time in the past six years. Dr. Judd said: "Wake up. We are the last target."

A Huddle on Ballroom Floor

L. to r.: C. L. (BACH) BACHELDER, Hercules Powder Co., Kalamazoo, Mich.; WILLIAM L. SCHNORBACH, formerly of Michigan Box Board, Filer City, now with Sumner S. Sollitt Co., 307 No. Michigan, Chicago, international engineering firm which has been consultant on two big Michigan mill expansion projects; and FRED SCHORKEN, Dorr-Oliver Co. Representative from Oakland, Calif., where he has been since 1950.

A YEAR'S EVENTS ARE CROWDED IN A FEW MOMENTS during TAPPI convention as these two friends get together. (l to r) ROYAL S. KELLOGG, Consultant for the Newsprint Service Bureau and C. G. MCLAREN, Vice President in charge of mills, National Container Corp. Mr. Kellogg has been attending Paper Weeks since 1918, was original Secretary of Newsprint Bureau. He lives in Palmetto, Fla. Mr. McLaren's responsibilities in NCC were recently greatly broadened.

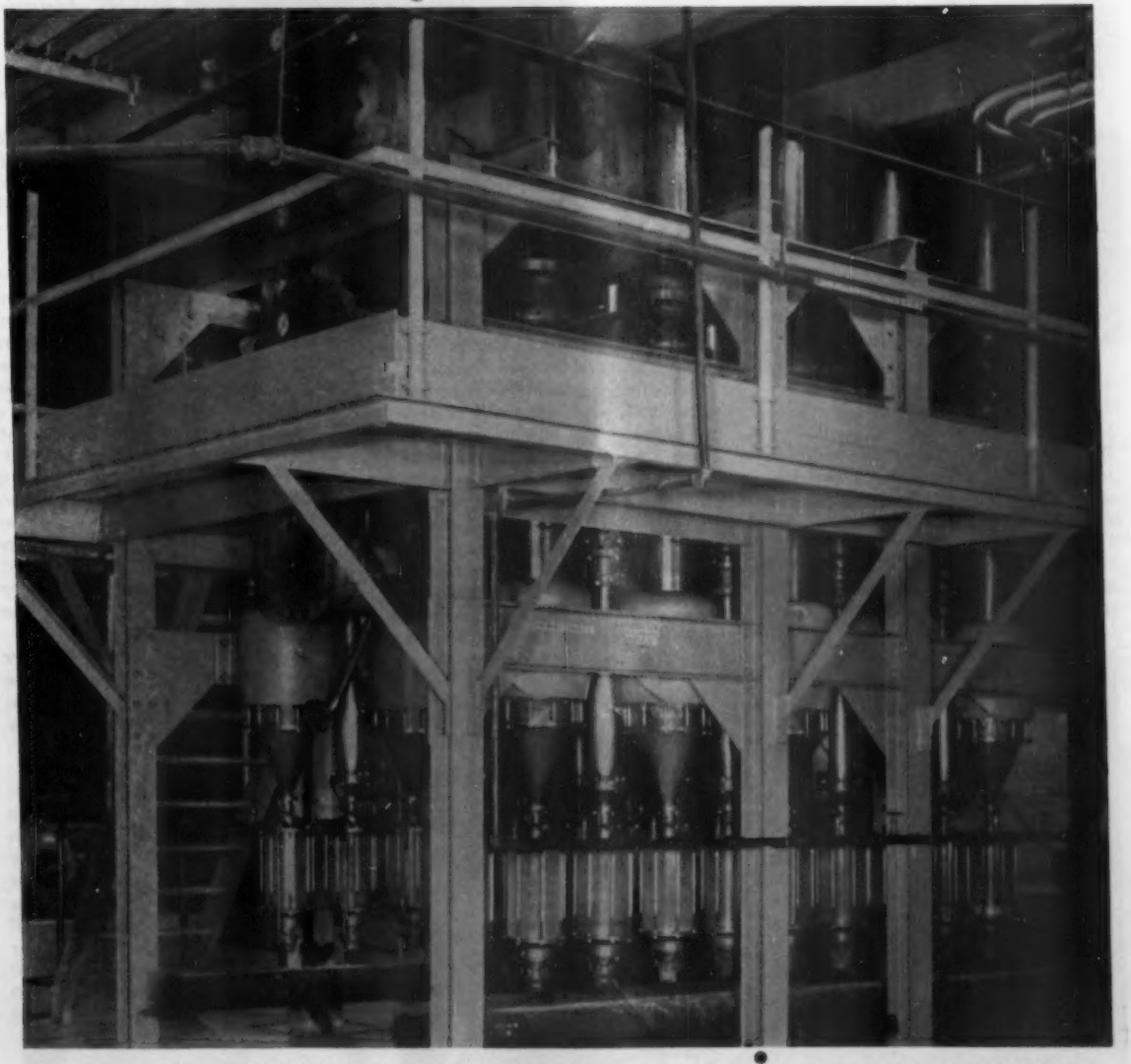
Technical Leaders Get Together

HAROLD BIALKOWSKY (left), one of the Institute of Paper Chemistry's first two alumni, and now Research Director of Pulp Div., Weyerhaeuser Timber Co., talked over new things with an old friend, J. H. HEUER, Technical Director of Great Northern Paper Co., whose late father was a long time Weyerhaeuser Supt. out West.

KING SIZE DIRTECS

DO A KING SIZED JOB

Of Taking The Dirt Out Of Pulp, Paper and Board Stocks



The regular (6″-2″) Dirtecs have long since demonstrated their ability to get the dirt without appreciable loss of good fibres and with maximum efficiency at minimum cost of operation and maintenance.

Now, the King Size (12″-4″) Dirtecs are doing the same thing on pulp, groundwood and board stocks. Each one of these big Dirtecs handles 1200 gallons of stock per minute.

If you're not already profiting by the use of Dirtecs, let us make recommendations and estimates on the one best set-up for your grade and volume of stock.

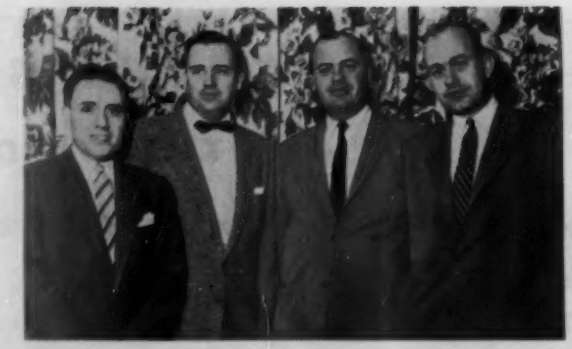
BIRD
MACHINE COMPANY
South Walpole, Massachusetts

POLLUTION—One of many useful projects Mr. Sibler set in motion during his tenure as Engineering Division chief was the new one which will tackle the generations-old, aggravating water pollution problems of the industry—from a purely scientific approach.

Industry leaders who have wondered why TAPPI didn't sink its teeth into this problem long ago, may find an answer in the fact that when a committee was finally set up, even the name of it was a hurdle to overcome. It is being called the "Sanitary Engineering Committee." Water supply and water purification will be its subject.

This is one of the most fertile future fields for engineering in this industry today, as is easily understood by all who know anything about the increasing problems of waterway pollution in America today. This committee's work promises to be as significant as that of the Corrosion Committee, which tackled a major industry problem several years ago and made a good record for itself.

GEORGE GRIFFITH, a project engineer with West Virginia at its Luke, Md., mill, and DR. HARRY W. GHEM, technical director of the National Council for Stream Improvement, will be leaders in the new Engineering Division activity. As in the case of the Sulfite Mfrs. Research League in Wisconsin, the committee's guiding light will be the principle that stream problems can only be justly solved by a scientific, not a political approach.



RICE BARTON QUARTET were happy at news that new paper machine for P. H. Glatfelter Co.'s new paper mill will be an entire Rice-Barton machine. They are (l to r) ANTHONY J. CIRRITO, Sales Engineer, ANGUS J. GARDNER, Vice President, Sales, CHARLES S. BARTON, President, and WILLIAM E. BRIGHT, Advertising Manager.

DATES FOR ENGINEERS—THRU 1960—There are several big things the Engineering Division is planning for the future. In fact, a tentative unofficial selection of cities for its Fall Conferences for the next six years are as follows:

1955.....Houston, Tex.
(Hotel Rice)
1956.....Boston, Mass.
(Sheraton Plaza)
1957.....Cincinnati, O.
(Netherlands-Plaza)
1958.....Grand Rapids, Mich.
1959.....Portland, Ore.
(Multnomah Hotel)
1960.....Jacksonville, Fla.
(Geo. Washington)

The convention definitely is going to Houston, now the biggest city in the South, with over 1,000,000 population, this fall, probably late October.

Despite opposition from some of the engineers' "elder statesmen," who felt the Coast was too far away and should continue its own Engineering meeting, the Portland date for 1959 definitely was put "into the works." And the engineers plan to go back to the South again just 5 years after this fall's meeting.

The Engineering Conference usually draws 600 delegates or more. It will always be in late October or November, but never any conflicts with Worlds Series, as planned now.

SUPER BLEACHING WITH HYPOCHLORITE AND PEROXIDE were thrashed over by this panel. Standing (l to r) are FRANCIS L. FENNELL, Peroxide Products Development, E. I. du Pont de Nemours & Co., W. F. SCHROEDER, Technical Service Engineer, U. S. Industrial Chemicals Div., of National Distillers, FRED R. SHELDON, Research Dept., Buffalo Electro-Chemical Co., R. E. NOREUS, Manager, Technical Service Dept., Northwest Paper Co. Seated (l to r) are JOHN M. McEWEN, Tech. Dir., Everett Kraft Mill, Weyerhaeuser Timber Co., RAYMOND S. HATCH, Director of Research, Hudson Pulp & Paper Corp. and W. K. VOSS, Asst. to Manager of Mfg., Ontario Paper Co.

"A TERRIFIC PAPER MARKET"—One of the most exciting talks given at TAPPI sessions was not described in the condensations of most papers which the association published in the back 28 pages of its program. Buckminster Fuller, of Forest Hills, N.Y., a prominent architect, told about the new paperboard dome-shaped buildings which the Marines pick up on a helicopter hook and carry around from one place to another at speeds up to 60 mph. He challenged papermakers to improve structural strength and qualities, so they have even wider usage. The Marines use them for housing personnel, for hangars, etc.

"Sounds like a terrific market for paperboard and new resins," said one technical director. Magnesium frames, plastic skins and wood frames are now used with the paper.

BIGGEST RECOVERY BOILER—There was no paper about it, but Combustion Engineering Inc. has made unofficial news by designing and building what are reputed to be the biggest black liquor recovery units in the world. One is for Enzo-Gutzeit company in Finland and the other will be for a major producer in Southern U.S. Capacities are about 540 tons a day, 3,000 lbs. solids per ton, 6500 btus per ton dry solids minimum, and each standing about 150 ft. high.

BIG JIM WAS THERE AGAIN—Delegates to Paper Week every year, who get their breakfast in the Waldorf Coffee Shop every morning, can usually look forward to seeing one very familiar face. And, sure enough, there he was again, having his solo breakfast there—big Jim Farley, the former President-maker and Postmaster-General. He is only running for Coca-Cola now, but he returned the smiles of all.

20% OF LABOR COSTS ARE "FRINGE" BENEFITS—By getting reports from 19 representative companies, of all sizes, representing various grades, and from coast to coast, the APPA found that 20.7% of their labor costs were in "fringe benefits"—other than straight time pay. This figure is believed average for the industry.

Some companies paid as high as 31% of labor costs, some as low as 18%, for pensions, insurance, hospitalization, vacation and holiday pay (when not worked), sick leave, rest periods, overtime. The outlay for other than straight time pay averaged 43 cents an hour, but went as high as 72 cents in one company. Glen Amos, assistant secretary of APPA, presented the data at a Paper Week meeting.

Basic wage rates obviously no longer tell the story of labor costs; many items must now be negotiated. One big company has decided to instruct all its divisions to compile such reports regularly hereafter.

CORROSION STUDIES BROADENED—TAPPI's Corrosion Committee (it has been promoted from subcommittee status) has greatly broadened its scope of activities under new chairman STEVE BAISCH, Thilmany's design engineer in charge of engineering. Up to now it concerned itself only with kraft digester corrosion. A new 3-way program calls for corrosion studies in:

1. The unbleached pulp cycle—sulfite, soda, semi-chemical as well as kraft.
2. The bleached pulp cycle—for all four processes.
3. The paper mill process.

WAYNE SMITH, production manager, Crossett Paper Mills, is project leader to keep programs going in 11 different regions of the U.S. Mills in each area will be contacted for data. An evaluation will continue as to effects of the kraft digester corrosion monograph and whether work to date has reduced or stabilized kraft digester corrosion, or whether it is increasing.

Model of New Equipment Shown

FRANK KOHLER shows Paper Week friends a new "EXPANDREL," an expandable core shaft developed by his brother, JOHN D. KOHLER, of Crystal Lake, Ill. from an old machine tool idea of the Patton Mfg. Co. This shaft, says Mr. Kohler, will hold rolls absolutely rigid with no rocking and no parts to get out of order. It will be available for either stub chucks on end of cores or center elements.

WHAT LIQUOR COMPOUNDS CAUSE CORROSION?—A study of relation of cooking liquors to corrosion is being carried on by DR. ROY WHITNEY at the Institute in Appleton. Higher sodium sulfide, increased chloride and chemical compounds in white liquor not normally reported in analyses are reasons some experts have given for increased corrosion. They recommend checks on effects of complex sulfur compounds, oxidizing and reducing compounds and gases. West Virginia P & P found that sulfur added to sodium monosulfide, when added to caustic liquor reduced corrosion.

Chairman Baisch was mighty proud when 21 of his 25 members turned out for an all-day session the Sunday before Paper Week began—2 of those absent were on the Pacific Coast. The committee offered ideas until 7 p.m. for a treatise on how better design of digesters might get rid of local attacks and extend life. MERRILL SCHEIL, corrosion research chief of A. O. Smith Corp., brought along his colleague, L. G. PFEIFFER, who will refurbish the information for presentation at the Engineering Conference in Houston in late October.

WILL FLORIDA PALMS BE SOURCE OF PULP?—A new company has been organized in Florida which aspires to build a pulp mill that would utilize the famed Florida palms for a product that would be bleached with about 18 to 20% chlorine and is said to be suitable for paper specialties.

Are there enough palms in Florida? Well, F. E. Getchell and Harry S. Getchell, who head up Florida Palms, Inc., Okeechobee, Fla., were at the Waldorf for Paper Week, ready to demonstrate to any and all comers that the fast-growing palms would be more than ample for a 200 ton mill. It would be located on Lake Okeechobee. We don't know what ears the Getchells succeeded in "bending," but there were a lot of potential mill builders around Park Avenue during Paper Week.

PULP & PAPER CAUGHT THIS TRIO in a business-like moment as they discussed "What's new" at Paper Week. They are (l to r) FRED H. SUTTON, Artisan Metal Products, Inc., GEORGE O. TRUDEAU, Holyoke Machine Co., and SIG OETTINGER, Artisan Metal Products.

If You Added Up All Meetings They Have Seen, It Would Be in 3 Figures

JACK O'CONNELL, Industrial Specialist and Program Coordinator for New Facilities in Business & Defense Services Administration, Washington, D. C. He lives at 1605 Argonne Place, N.W., Washington 9, D. C., and is a veteran in forest industries activities in capital.

LYMAN A. BEEMAN, President of Finch, Pruyn & Co., Inc., who has had wide experience in technical and management fields of this industry.

A. HALVAR LUNDBERG, of Seattle, Consulting Chemical Engineer, who helped pioneer many big West Coast pulp developments over 25 years.

FEATURES OF NEW SPROUT-WALDRON-ANDERSON EXPELLER shown (l to r) to DICK HAMILTON, St. Regis Paper Co., Deferiet, N.Y., by DICK PERRY, V. D. Anderson Co., and ROBERT E. COLLINS, Sprout-Waldron & Co., Inc. Either pulp or chips, mechanical or chemical with varying amount of moisture can be processed through this expeller. It recovers 85% of soluble liquor, says company, and increases consistency by 35%. Expeller generates own pressure and has maximum 8 tons psi. It decreases power consumption in refiners. A commercial unit ahead of a 15-ton refiner processing 65 tons of semi-chemical pulp daily, is saving 50% refiner power.

SPEAKER CITES WORLD REVIEW DATA—TAPPI rolled up a record 2200 registered.

CLARENCE FRANCIS, former chairman of General Foods Corp., speaker at the luncheon, challenged technical men to develop new products which could make better use of surplus agricultural products. Storage charges for these surplus products are $700,000 a day alone; 1,000,000 bales of cotton linters being but part of this.

Mr. Francis brought out a point featured exclusively in PULP & PAPER'S 1954 WORLD REVIEW NUMBER, data on paper consumption of the Free World vs. the Red World, which dramatically demonstrates why there is a Red World. The Free World consumes ten times more paper. The consumption per capita of the U.S. is 50 times greater than in nations behind the iron curtain.

CONTINUOUS DIGESTERS STIR INTEREST—JOHAN RICHTER, chief engineer of AB Kamyr, Stockholm, who came over from Sweden, joined with KNUT DAHL, who heads the newly formed American Kamyr company at Hudson Falls, in several showings of moving pictures of the Kamyr continuous digester during Paper Week and afterward. It was shown at engineering or company headquarters of firms in New York. The digester so far has been successful in smaller tonnage mills in Sweden and other European countries. Continuous digesting by some means is attracting much interest among leading manufacturing executives. One such executive told PULP & PAPER he considered it one of the most important new trends.

Watching the Annual Show at Commodore "Treadmill"

L to r: LOIS V. HANS, Chief of Paper Products Section, Research and Development Command, U.S. Quartermasters Corps, Natick, Mass. She moved to Natick last May from QM's Research Lab in Philadelphia.
TED E. DETCHER, Vice President and Chief Engineer of Chemical Linings, Inc., Watertown, N.Y., who attended N.Y. meetings with his chief, Pres. Murray Bennett. Mr. Detcher is son of a former New York financial editor. He has had extensive experience in chemical pulping.
DR. MAMERTO CRUZ, Research & Development Division, American Viscose Corp., Marcus Hook, Pa. Native of The Philippines, he was interested in pulp purification papers.
ROBERT F. AVERY, Ketchikan Pulp Co., assigned to the Marcus Hook Research and Development Division to assist in Ketchikan pulp usage by Avisco. Both he and Dr. Cruz are graduates of Syracuse University.

MANY DELEGATES MOVED UP PARK AVE.—A great many at Paper Week made comments on two distinct "phenomena" that were noticeable at the events this year. First, many operations men, as well as technical men and superintendents, as well as managers, from the mills were found at the Waldorf or the Barclay or other hotels nearby, meeting customers at company rooms and attending Waldorf meetings. In past years they remained mostly at the Commodore and at the technical sessions. Several equipment companies, too, held "open house" in the Waldorf.

Secondly, the famous "treadmill" on the Commodore ballroom floor had more quiet periods than usual, particularly the first day and during evenings. That great Mecca for finding friends and customers wasn't what it used to be. Nevertheless, every one of the Commodore's 1400 rooms was filled.

Anheuser-Busch Field Team Keeps Growing

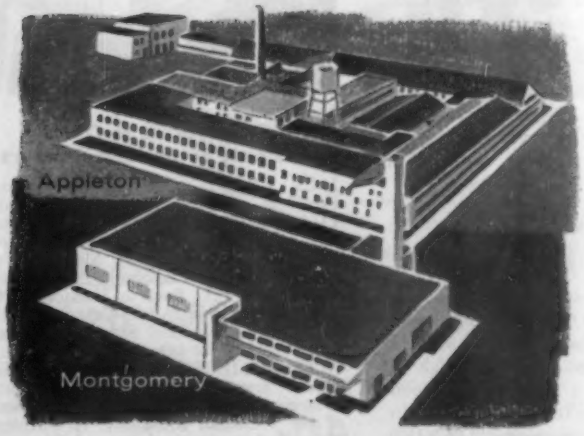
Expanding their services to this industry, the Anheuser-Busch Inc. Corn Products Division has added a field staffer, shown here with other members of St. Louis firm's staff (l to r): KEN BATTENFIELD, Technical Sales Service Rep.; CHARLES KLUCKER, who has moved from native St. Louis to 1208 So. Memorial Dr., Appleton, Wis., to cover Wisconsin and Minnesota; CARL HOELDERLE, of Kalamazoo, Mich., Lake States District Manager; LUKE H. GRACE, of Cambridge, Mass., Northeastern District Mgr., and BOB LEMIEUX, of Dayton, O. Mr. Klucker and Mr. Lemieux serve under Mr. Hoelderle. Mr. Klucker's previous post was evaluating starches and dextrines in St. Louis laboratory. He has been with famed Budweiser firm 18 years. (Not in picture, TATE M. ROBERTSON JR., Sales Mgr., and ED GILLEN, Tech. Mgr., of Corn Products Div., also were at Paper Week.)

A MESSAGE ABOUT SELLING—Young men in this country need an education in selling—they never knew competitive selling as it existed before the war. That was a message brought to Paper Week by **GABRIEL (GABE) J. TICOULAT**, Crown Z v. p. and its top sales executive.

In one of his talks, before 1700 members and guests at the salesmen's luncheon, he said there is an immense demand in Europe for paper and pulp which only North America can meet "for a long time to come." He went there last fall as member of one of many American business "teams" sent overseas to learn how to do business with Europeans. Scandinavia cannot take care of the demand, he said, and he came home in high optimism. With full employment, and business booming, the demand for paper and pulp also is increasing. He supported J. D. Zellerbach's arguments for free trade and said present attempts to integrate Europe's 18 countries in some kind of unity will help the more sound industries. He spoke in similar vein at meetings of U.S. Pulp Producers and Tissue Association.

TINKER MAKES FORECAST—An oldtime U.S. forester himself, TED TINKER, APPA executive secretary, told SAPI that present forestry programs are so advanced that within a

Paper adds zest to our civilized life



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decade the U.S. and Canada could double production. "World demand for U.S. pulp and paper will become almost insatiable," he said, and listeners recalled he recently returned from a meeting in Buenos Aires to find ways to meet the paper needs of 160,000,000 Latin Americans in the future.

SEEKING DRY STRENGTH—Delegates from the South and Northeast who want to make their semi-chemical hardwood pulps more useful and others from the Far West who seek a 100% fir refuse pulp that would save hemlock and spruce resources were on the lookout for chemicals to give dry strength or make harder sized papers. The economics for these pulps and semi-chemical pulps in every area are regarded as tremendous.

FIRST 2-STAGE ClO_2 BLEACHING—There was a great deal of interest at Paper Week in progress in chlorine dioxide, and the experts asserted the old safety problem is well behind them, and is licked, but now the big drive is for better brightness and fiber quality. Biggest news was that the first two-stage bleaching with chlorine dioxide is going on at St. Marys Kraft, St. Marys, Ga.

March 1955 issue of PULP & PAPER carried first published summary and exclusive news of growth of chlorine dioxide usage in this industry—told how 30 mills now, or soon will have, plants. All except St. Marys using one final bleach stage.

A QUIP FROM WEST COAST—DON McCALL, a former president of the Sulfite Paper Mfrs. Assn. Inc., was called upon to present a silver set to WAYNE BROWN, who had just completed a term as head of the same group. Mr. McCall, now v. p. and general manager of Everett Pulp & Paper, reminded his audience of a healthy paradox that is often witnessed in the modern business world, when he said Mr. Brown's company is simultaneously both his "biggest customer" and "biggest competitor." Mr. Brown is Crown Z's New York chief.

Family and Friends Happiest As Vance Edwardes Won Medal

This picture by PULP & PAPER was taken shortly after VANCE EDWARDES won TAPPI's 1955 Gold Medal. Left to right:
CHARLES W. RICHARDS, Assistant Mgr. of International Paper Co., Yorktown, N.Y.; VANCE EDWARDES, a Consultant at Corinth, N.Y., near the International mill at Palmer (the Hudson River Mill), where he was Sulfite Supt. for many years until succeeded in 1949 by his son-in-law, Frank McCourt. Mr. Edwardes was born in San Francisco; his first mill job was with Crown Willamette at Oregon City, Ore. VANCE EDWARDES JR., very proud of his father's honor. He is Asst. Gen. Mgr. of Ingersoll-Rand plant at Phillipsburg, N.J. He has three sisters.

CONVENTION HIGHLIGHTS ARE PONDERED by (l to r) JAMES E. AYER, Head of Dept. Pulp & Paper Technology, U. of Ala., S. W. BLANCHARD, Mead Corp., JOHN DAVIS, Asst. to Vice Pres. Pringle, Mead, and DON F. MORRIS, First Vice Pres., Mead Corp.

PEROXIDE BLEACHING Q's AND A's—A panel on peroxide bleaching brought provocative questions and provocative answers:

Q. Does the use of peroxide in a kraft plant increase the potential capacity of a given bleach plant?

A. About 10% was the answer from one mill representative.

Q. Can peroxide be used for bleaching all types of krafts such as hardwood and softwood from any area?

A. Any of these respond in about the same manner to peroxide.

Q. How does the brightness stabilization of bleached pulp compare with peroxide as used in next to final stage?

A. A good peroxide bleach will reduce reversion 50%; from 5% to 7%, to 2% to 3%. Color reversion also has something to do with washer efficiency.

A BIG PORTLAND DELEGATION—For its size and distance, and with no mills in its limits, Portland, Ore., had a surprisingly big delegation. It included JOHN M. FULTON, purchasing director for Crown Zellerbach; LEROY SHANAMAN, sales mgr. of Penn Salt of Washington (he is moving to Tacoma, Wash.); JACK WILCOX, process div. mgr., Electric Steel Foundry; BOB BAER, sales mgr., Griffith Rubber Mills; BURKE MORDEN, BLAKE HONEYMAN, and FRANK CASKEY, Morden Machines; DOUG ARMSTRONG, Vanderbilt Co., C. L. KOERNER, mill supplies; H. B. PETERSEN, Hercules Powder Co., and STUART MOIR, Western Forestry Conservation Assn.

COMMUNITY SPEAKERS' BUREAU—Community relations exhibits during Paper Week drew an estimated 85% to 90% of the top executives registered and many of them returned two or three times to get closer looks at the exhibits. Donald Rochester, secretary of APPA's Community Relations Committee, said some were professionally made by exhibit makers; others were the work of committee members. A planned public relations program has been added in the form of a speakers' bureau. Mr. Rochester's first step will be to survey the industry for men who are available for such work and then to contact state and national teachers' groups to let them know of the availability of such a service.

Chemipulp Process in Canada Represents Sutherland Refiners

JACK GRANT, who recently became President of Chemipulp Process Ltd., 1411 Crescent, Montreal. This company now represents Sutherland Refiner Corp., Trenton, N.J., in Canada. Mr. Grant is also Vice Pres. of Chemipulp Process Inc., Watertown, N.Y. Born in Halkirk, Scotland, he was with Anglo-Canadian mills for 20 years, was Gen. Supt. at Gaspesia in 1946 when he joined Chemipulp.
ALBERT MERRILL, President of the parent firm, Chemipulp Process Inc., Watertown, and Chairman of the Board of the Canadian subsidiary. A northern New York native and one of Clarkson College's leading alumni, he pioneered many new processes or developments in the paper industry.
ANTHONY E. THEISEN, of Watertown, Vice President of both companies. Born in Napoleon, N.Y., graduate of Oregon States College (1942), he was serving in the army near Watertown, when he met his future wife there and when he returned, he went to work for Chemipulp.


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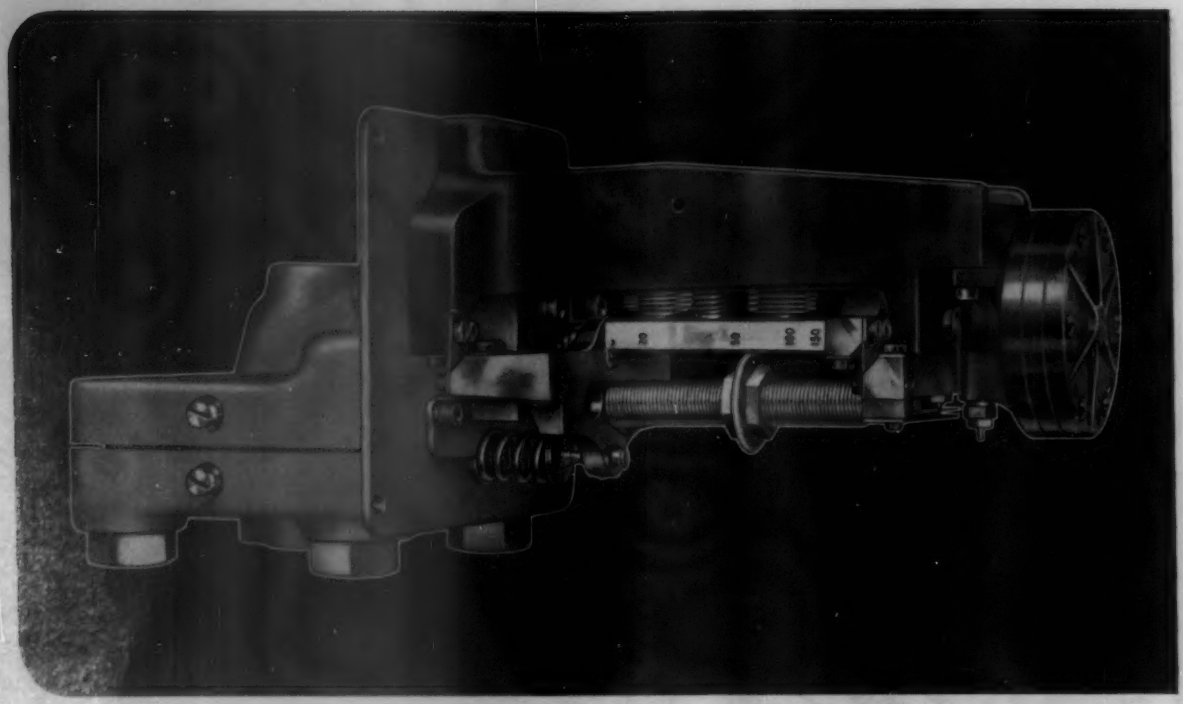
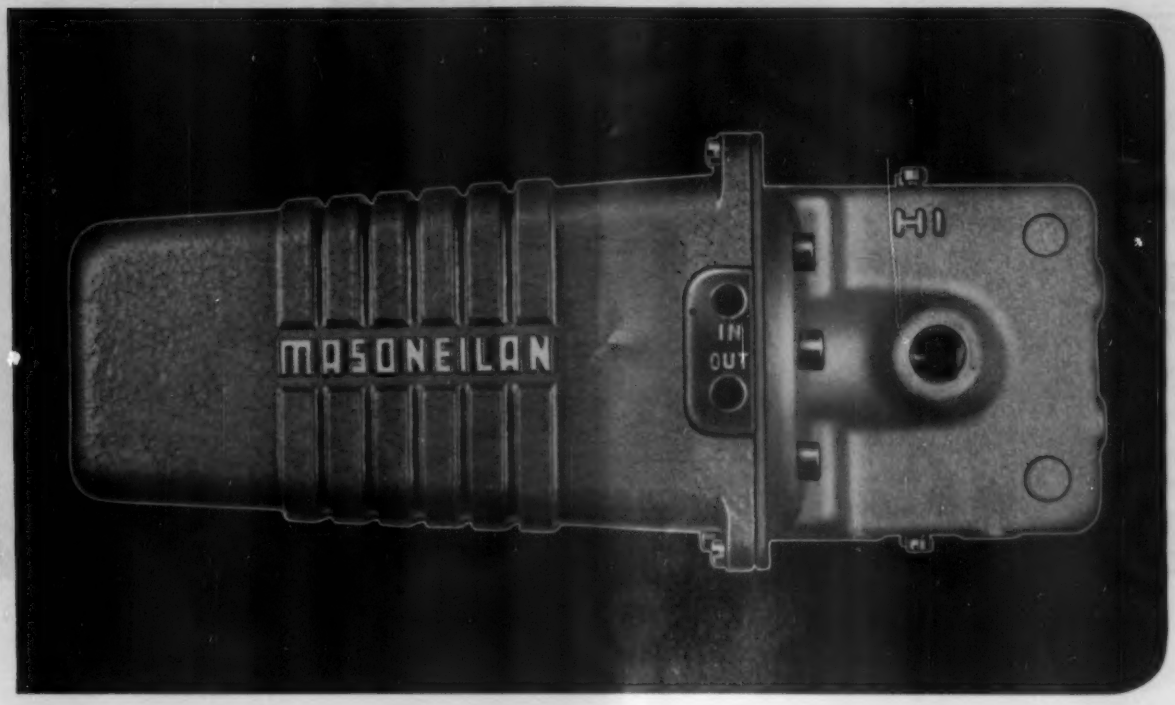


NEW MASONEILAN MODEL

Offers Advantages Never Before

This new, compact, force-balance type precision instrument offers advanced design features not previously found collectively in any similar transmitter. For example:

- Has standard Masoneilan balanced, amplifying relay type pilot.
- Air passages all contained in sturdy mechanism frame — no tubing or fittings used inside cover.
- Damping unit is *sealed* — damping fluid cannot be lost in any position of the instrument.
- Heavy section mechanism frame bolted directly to diaphragm housing, and cover mounted to a floating plate, eliminating distortion due to outside forces acting on case.
- Diaphragm housing is rugged AISI Type 316 stainless steel forging; avoids possibility of distortion from piping.
- Self-aligning, friction-free flexure bearings of beryllium copper for greater strength.
- Mounting is on diaphragm housing — point of greatest mass — insuring sturdy installation.
- Adjustments provided with locks to insure retention of calibration.
- Overrange protection provided for differential pressure equal to maximum static rating. Diaphragm protected against overload or negative differential.



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● Extra heavy primary beam minimizes bending.

● Drain connections at lowest point in diaphragm housing; vent connections at highest point in diaphragm housing — insures proper venting and complete drainage of condensate on both high and low sides.

● Materials selected for maximum strength and accuracy with highest corrosion resistance and minimum temperature error (1% per 100°F ambient temperature change).

These and other design features make Masoneilan Model 4800 Differential Pressure Transmitters outstanding among instruments of this type. Write for complete information.

SPECIFICATIONS

Range — Adjustable from 20″ to 200″ H_2O

Static Pressure Rating — 1500 psi

Ambient Temperature Rating — minus 30°F to plus 180°F

Weight — approximately 30 lb.

Pressure Connections — ½″ NPT internal

Air Supply — 20 psi

Output — 3-15 psi

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Many Firsts and Near-Firsts in This Paper Machine Room

At East Millinocket mill of Great Northern, Beloit's 276 in. paper machine is first designed for maximum operating speed of 2500 fpm. Ross-Hooper enclosed type paper machine hood is first in U.S. Shartle Selectifiers are first on newsprint machine. A different and new air bleed principle features third suction press.

"The Northern" Story Begins Here:

Great Northern's Trail Blazing Opens Up

Great Northern Paper Co. is the largest U.S. producer of newsprint; making approximately one-third of U.S. newsprint. It is Maine's largest enterprise and is on the American Institute of Management's 1955 list of best managed companies.

Great Northern forests encompass over 2,250,000 acres; all of it virtually within 100 air miles of Millinocket. This is approximately 11% of Maine; an area comparable in size to Delaware and Rhode Island.

Great Northern's operations are centered in Maine's four northern counties comprising one of the world's finest natural locations for large scale papermaking. Here are timber and waterpower resources in abundance. Here, the Northern is known as "the U.S. Steel of the paper industry."

Three mills form Great Northern's manufacturing team, at Millinocket, East Millinocket and Madison. Total daily production is more than 1,500 tons; over 90% newsprint.

Great Northern Paper Co. was founded in 1899 by Garret Schenck, one of the nation's most successful paper mill builders and operators. Charles Mullen, a Maine engineer, interested Mr. Schenck in the unusual possibilities of a site at Millinocket.

The 10-machine Millinocket mill produces over 900 tons of newsprint a day. It is 85 miles north of Bangor on the west branch of the Penobscot river. It produces all its own pulp as well as sulfite pulp for the Madison and East Millinocket mills.

In the groundwood mill pulpwood is supplied to 30 Great Northern grinders by a water conveying system. The sulfite mill has seven digesters and has been completely modernized as to pulp production and screening equipment.

In the paper mill six Fourdriniers trim 138 in. and four trim 146 in. A 76-in. trim cylinder machine makes the company's newsprint wrappers, and a machine produces cores for rolls.

At the East Millinocket mill is the first commercial chemi-groundwood plant in the world, the new newsprint machine, with a second new machine to be added this fall. Paper production at this mill is being increased from 320 to over 850 tons a day.

The Madison mill is on the Kennebec

Highlights of PULP & PAPER's Story About East Millinocket

1. First commercial operation of chemi-groundwood process.
2. Vertical digesters of Great Northern design cook 4 ft. logs. Would be ideal digester for semi-chemical pulping, says Great Northern.
3. Entire cooking operation in chemi-groundwood plant controlled from a graphic control panel at bottom level of digester.
4. Largest paper machine in U.S. designed to operate at record newsprint speeds of 2,500 fpm.
5. First installation in U.S. of Ross-Hooper enclosed type machine hood.
6. First installation of Shartle Selectifiers on a newsprint machine.
7. First successful installation of Diamond Alkali soda ash slurry handling system.
8. Most complete water treatment plant in U.S. pulp and paper industry today.
9. Highest steam pressure plant in newsprint paper industry today.
10. Push-button control roll handling system from rewinders to shipping, engineered as complete package by Lamb-Grays Harbor, Inc.

River, about 65 miles west of executive offices at Bangor. It has two paper machines trimming 128.5 in. and 122 in. and is capable of producing 95 tons daily of groundwood and sulfite specialties. The smaller machine is idle at this time. This mill also has a modern peroxide bleachery.

To produce its own power, the Northern has developed one of the greatest water storage and power systems owned by any North American mill.

Its total storage capacity of 57 billion cu. ft. is enough to supply New York City with water for more than a year.

Fifteen primary and four permanent main reservoirs back up six Penobscot river power developments. A seventh power development is on the Kennebec for the Madison mill. Total rated installed capacity for the Northern is 142,200 hp, enough to provide complete service to a city of 200,000. There exists tremendous potential low cost hydro-electric power still available at undeveloped nearby sites.

Net sales of the Great Northern Paper Co. in 1954 were 44,902,228, the highest attained to date by the company in its 55 years of operations.

Advantages of Chemi-Groundwood, According to Great Northern

- Density of most available hardwood yields approximately 25% more pulp per cord. This single advantage, says Great Northern, is enough to more than absorb additional costs of steam, chemicals and labor.
- Chemi-groundwood logs require one-half the hp of softwood, giving greater yield on extisting equipment. This extra production can reduce investment in new plants.
- Mullen and tensile strength approach those of sulfite. Strength characteristics are considerably higher than regular groundwood. Tear is about halfway between regular spruce groundwood and sulfite—allowing reductions in sulfite content.
- Wood species cheaper and more readily available.
- Equal brightness to softwood groundwood.
- Hardwood species easier to regenerate.
- Balances good forest management and wood utilization.
- For Northern's purposes, hardwood is along cleared areas and farms. About 11 million cords are within a 50 mile radius and within 15 miles of the Bangor & Aroostook rail lines.
- Chemi-groundwood pulps produce yields of 85% or better.
- Chemi-groundwood liquor is re-used over and over again.
- Laboratory work indicates that conventional peroxide bleach can be highly successful, also hypochlorite bleach.
- Chemi-groundwood logs are soft, pliable and do not produce friction temperatures normal in grinding.
- Chemi-groundwood is a step forward over semi-chemical pulp in brightness and cleanliness; is superior to semi-chem from attrition mill.

a New Era for New England Industry

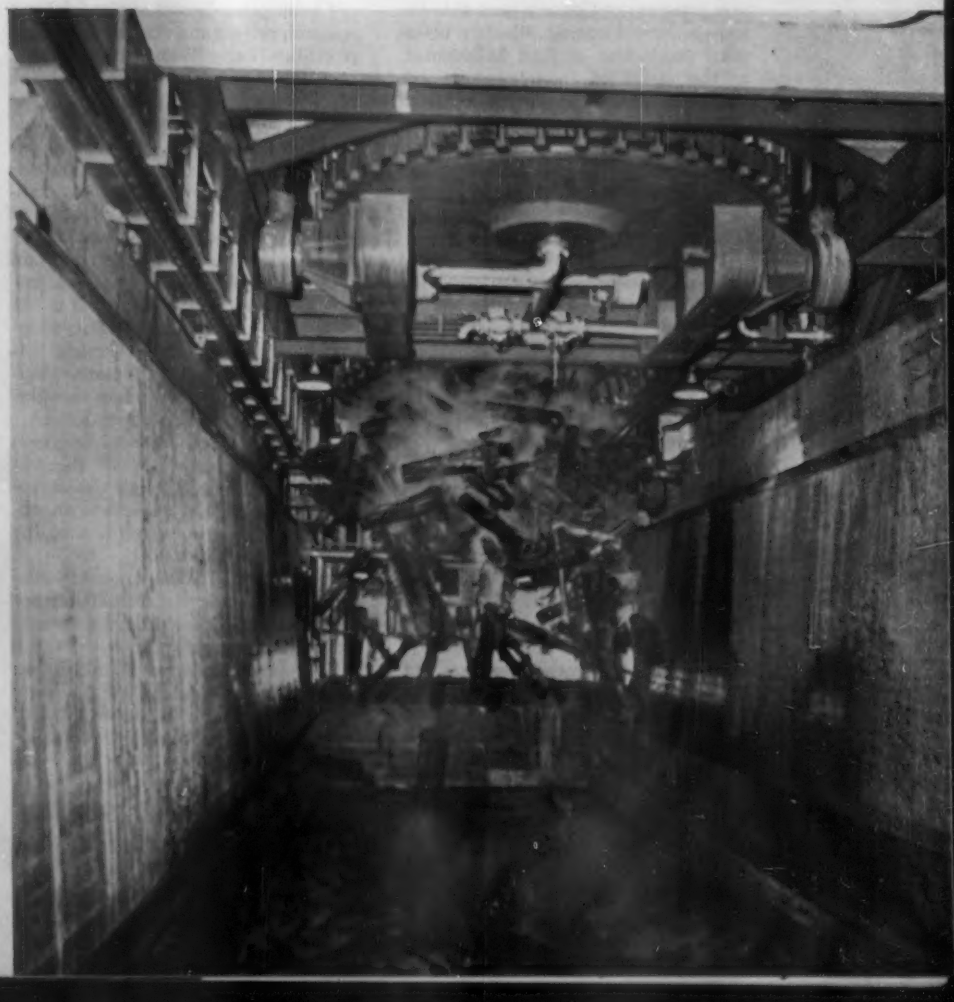
• Out of the North Country from the heart of the deep Maine forests, a greater Great Northern Paper Co. has arisen. Its story is one of the major pulp and paper stories of the year.

Heart of the story is the dramatic fruition of chemi-groundwood pulping, a 150-ton a day reality at East Millinocket, Maine. It brings a new importance to utilization of Northeastern hardwoods on a tremendous scale.

For the first time in Great Northern's forest supply area, hardwoods are on equal footing with softwoods. It is as if a forest equal in size again to that existing in northern Maine has grown overnight at the manufacturing fingertips of papermakers.

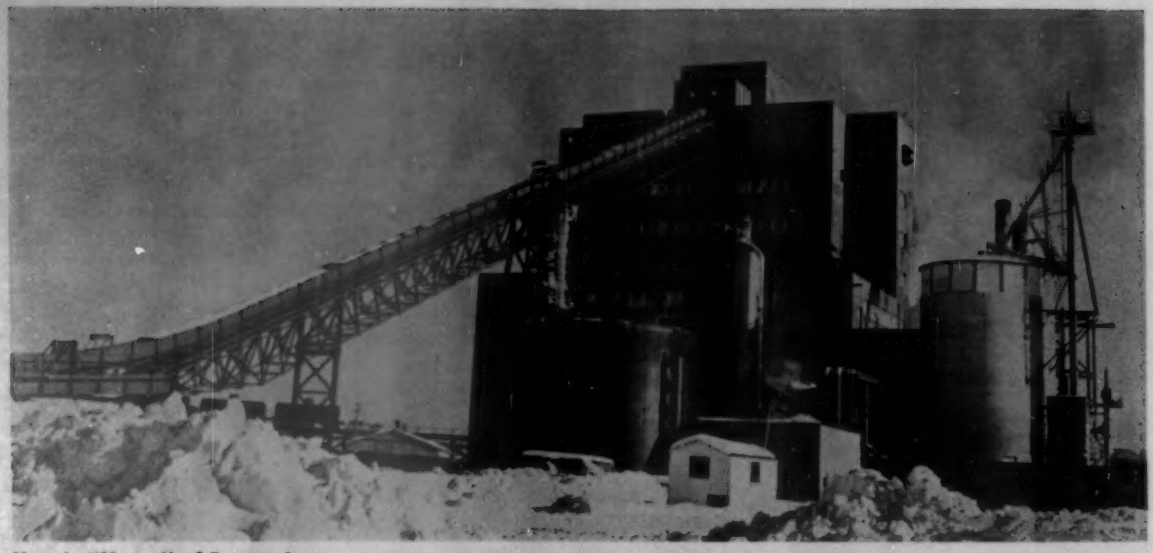
For years hardwoods have flourished side by side with softwoods and as the softwoods of merchantable size were cut, hardwoods were left to overmature. Now hardwoods can and are being successfully processed, for the first time, into an economical and quality pulp for newsprint.

At Great Northern's East Milli-



Discharges Whole Logs

Unique in experience of pulpmen is the sight of 4 ft. logs discharging from this vertical chemi-groundwood digester of Great Northern conception in picture by PULP & PAPER.



Here's "Heart" of Expansion

Particular pride of Great Northern Paper Co. is this chemi-groundwood plant; the heart of their $45 million expansion program. Photo by PULP & PAPER.

nocket, Me., mill a unique, radically-designed digester, said to be 25 years ahead of its time, is cooking 4 ft. hardwood logs. In a few hours its 50-ton bottom door will slowly unhinge and 25 cords of softened logs will plummet with a thunderous roar into a water-filled pit.

To Great Northern the success of chemi-groundwood is the foundation for a tremendous $45,000,000 expansion program unlike any ever seen before in New England. Already newsprint production at East Millinocket, as the result of chemi-groundwood, has been stepped up 250 tons, from 320 tons to 570 tons a day. Two more digesters and a giant 290 in. Beloit newsprint machine will complete "step two" sometime this fall, bringing total production at this mill to 820 tons a day.

This may be just the beginning, as it would appear to be a natural for "the Northern" to install similar chemi-groundwood facilities at its 10-machine Millinocket mill.

WHAT IS CHEMI-GROUNDWOOD?—Chemi-groundwood pulping is the pre-treatment of hardwood logs prior to grinding. As papermakers well know, untreated dense hardwood logs produce a "mealy" pulp unsuitable for papermaking. Chemi-groundwood logs are soft and pliable. Pre-treatment, says Great Northern, softens the tenacious lignin bond and actually allows the grindstone to pick the individual fibers off. It is an excellent step forward, they say, in brightness and cleanliness over unbleached semi-chemical pulp and is superior in many respects to semi-chemical pulp coming from the attrition mill.

The successful production of newsprint from chemi-groundwood furnish may become a major factor in the resurgence of a U.S. newsprint industry. In fact, when recently announced newsprint mills reach production, U.S. production will well exceed its previous peak of 1,684,000 tons in 1926. Great Northern now makes about one-third of all U.S. newsprint.

Chemi-groundwood evolved from a research project sponsored by the Empire State Paper Research Associates, Inc. (ESPRA) in cooperation with the N.Y. State College of Forestry.

For many years lack of a suitable pulping process for hardwoods has plagued Northeastern papermakers. In 1946 dwindling softwoods comprised only an estimated 35% of Northeastern forests. Hardwoods regenerated faster than softwoods and many hardwood stands were on former softwood sites.

Long haul costs of bringing pulpwood from as far off as Canada was one not too pleasant alternative. Apprehension lengthened when thoughtful looks were cast Southward.

That year Northeastern papermen took a good, long look at the fast growing hardwoods. High density of certain species had presented an obstacle ever since the invention of the groundwood process.

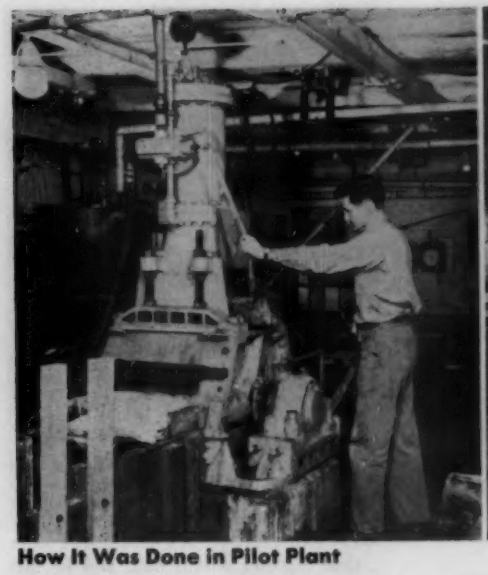
In 1946, 15 companies formed ESPRA to develop more satisfactory mechanical pulps from the hardwoods indigenous to their area.

Four years and more than 150 experimental cooks later, ESPRA came up with an answer, chemi-groundwood using neutral sulfite liquors. Alkaline liquors, they said, gave increased strength considerably over spruce groundwood and several hundred percent over untreated hardwoods, but the color of such pulps deteriorated 50%. Results with acid type liquors approximated alkaline but were not as pronounced. Optimum results were found with the neutral sulfite type liquors. Strength of these pulps was raised to the highest degree with good or equal brightness, the liquor was safe, relatively non-corrosive and could be re-used with refortification. Horizontal digesters were recommended. Strangely enough, there were no takers.

WHY GREAT NORTHERN CHOSE IT—At this point Great Northern Paper Co. entered the picture. It had studied various possible processes to utilize hardwoods. A $35,000 survey and plans for a sulfate mill were made. It concluded this involved a capital expenditure of at least $35,000,000, including costly chemical recovery facilities and without opportunity for increased newsprint yield per ton of pulp. Not satisfied, Great Northern, a member of ESPRA, made a serious appraisal of chemi-groundwood. What they saw made them change their mind, for as one company official says, "Great Northern and chemi-groundwood were made for each other." Here are his reasons:

1. Great Northern already had more than 50 years experience in groundwood production (including design and development of the Great Northern grinder).

2. The company's main product is newsprint and chemi-groundwood pulp was readily adaptable for newsprint furnish, both in brightness and



How It Was Done in Pilot Plant

This is pilot plant at East Millinocket, Me., where Great Northern developed chemi-groundwood suitable for newsprint. Operator is charging single pocket experimental grinder.

When Digester Was Horizontal

In this 50-ton a day commercial pilot plant 10 cars of hardwood logs, each holding a cord, were loaded into horizontal digester for pre-treatment.

strength characteristics.

3. Chemi-groundwood pulps produce yields over 85% compared with 40% to 50% for kraft.

4. Production per grinder is double that of softwood groundwood with corresponding power saving. Regular newsprint groundwood requires 60 to 65 hp days per ton and chemi-groundwood requires only 30 to 32 hp days per ton.

5. Chemi-groundwood cooking liquor is refortified and used over and over again. (When the 50-ton-a-day pilot commercial plant was dismantled, cooking liquor 21 months old was refortified and used in the new mill.)

6. Capital expenditure would not necessitate a costly chemical recovery system.

PILOT PLANT GIVES INFORMATION—To develop chemi-groundwood pulp suitable for newsprint, Great Northern had first to build a complete pilot plant of its own design at East Millinocket. Equipment included a 9 ft. by 2 ft. dia. horizontal digester capable of 300 lbs. pressure, a centrifugal liquor circulation pump, a positive displacement pressure pump, a concentric tube heat exchanger, an automatic temperature controller, a steam jet vacuum pump and a 500 gal. tank which served as combination liquor make-up, accumulator and blow tank.

A single pocket experimental grinder was moved from Millinocket, also a table saw to cut the 4 ft. logs into 10 in. blocks. A 26 in. wet lap machine provided pulp for an experimental 23 in. paper machine at Millinocket.

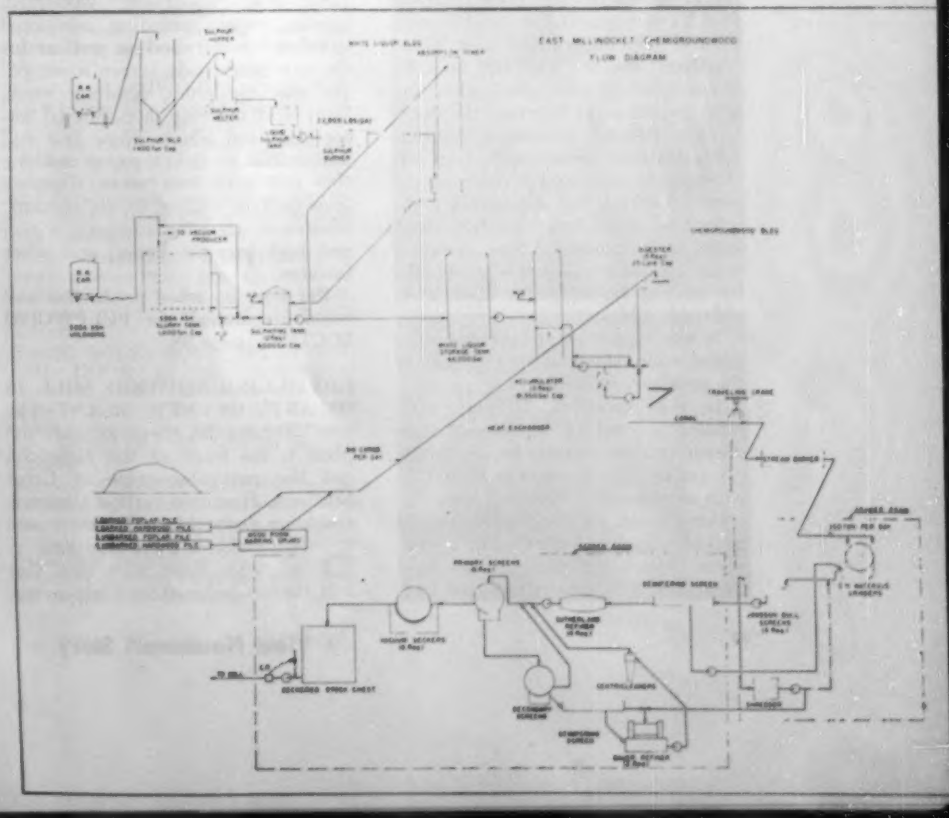
Beginning July, 1952, 300 cooks were made, which involved studies in liquor make-up, cooking cycles, wood species, chemical additives, pre-cooking treatments and a number of novel cooks.

Great Northern aimed to develop chemi-groundwood pulps at least as strong as normal groundwood which would not cause discoloration of finished paper. Tearing strength was most important. High mullen or bursting strength was secondary.

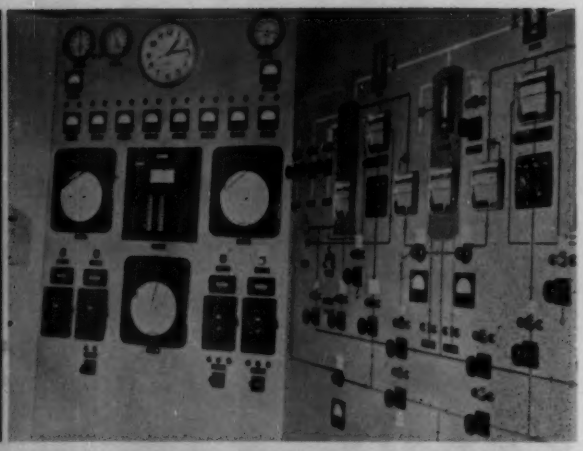
The first phase was developing an optimum cooking cycle for poplar. Both white and yellow birch were found to produce pulps of equal quality and thereafter were not separated. Hard and soft maple species had different characteristics, the former producing a bright, bulky pulp of comparatively low strength, the latter low brightness with high strength and both cooked together for an acceptable pulp.

Flow of Complete Process

Flow diagram of chemi-groundwood plant, liquor preparation system, grinding and screening.



ENTIRE LIQUOR PREPARATION is remotely controlled from this Foxboro designed graphic panel. Process vessels and flow lines are represented by symbols. Instruments are mounted in conjunction with these symbols to give complete picture.



"COOK" HAS INSTANTANEOUS control over all cooking operations from digester control section of graphic panel in chemi-groundwood mill. This operating section is at bottom level of digester; a marked departure from tradition.

One problem was the effect of wood moisture as a preventive of penetration. There was a direct relation between moisture in uncooked logs and cooking liquor that could be forced into that log. Wood with a moisture content above fiber saturation point began to give penetration difficulty. Wetting agents, to date, indicate no improvement in penetration.

Conventional peroxide bleaching methods were highly successful, as were hypochlorite bleaches. At present, bleaching of groundwood is not required for the newsprint furnish at East Millinocket. After grinding, softwood groundwood is about 57-GE brightness and chemi-groundwood is a few points lower.

NEXT—A FIFTY TON PILOT PLANT—So conclusive were results of the pilot operations that Great Northern invested $325,000 in a 50-ton commercial pilot plant, which began operations in February 1953.

Two 10-cord horizontal digesters were installed along with heat exchangers, pumps and vacuum equipment. A 28,000 gal. accumulator was refortified after each blow-back with 2,000 gal. batches of new chemical make-up. Makeup liquor was prepared by adding liquid sulfur dioxide to soda ash solution.

It was a pilot plant operation on a grand scale, symbolic of the "size of the company's thinking."

In this operation, 10 cars, each holding a cord of hardwood, were drawn into the digester by an electric car puller. The cover was bolted on with a pneumatic wrench. After the cooking cycle, the cars were removed by cable and unloaded onto a conveyor which supplied a standard Great Northern grinder powered by a 1500 hp motor.

Such a grinder will normally produce 24 tons a day, but this stone averaged 50 tons and for a short two-hour period could produce groundwood at the rate of 74 tons a day.

On May 23, 1953, the first full press run on newsprint using a large percentage of chemi-groundwood pulp was made by the Bangor Daily News. The $325,000 plant had begun to pay off and Great Northern began laying the groundwork for a $45,000,000 expansion.

The first phase includes a 150-ton-a-day chemi-groundwood mill with two digesters of Great Northern conception and a Beloit 276 in. machine designed for 2500 fpm. Supporting facilities consist of the highest steam pressure plant in the industry, a complete new woodroom, woodyard, grinder room, including additional grinders for softwood as well as for the new hardwoods, screen room, paper machine room, finishing room, train shed, machine shop, filtered water plant and offices. Phase two will add a 290 in. Beloit paper machine this fall with two more digesters (eventually a total of 6), six grinders, additional screening capacity, a second high pressure boiler, and other facilities.

For story on wood production and wood preparation, see PULPWOOD SECTION, page 98.

CHEMI-GROUNDWOOD MILL IS "HEART" OF NEW PLANT—The new 150-ton-a-day chemi-groundwood plant is the heart of the expansion and the particular pride of Great Northern. Here two vertical digesters are doing many things that were said to be impossible a short time ago.

There were those who said that logs thrown helter-skelter into a vertical digester would bind and be impossible to blow, and that cu. ft. capacity would be less than for chips or horizontal digesters. However, the McDonald digester (named after Great Northern's president) is said to be getting more wood per cu. ft. than where chips are packed into vertical digesters or logs into horizontal.

Unique in the experience of pulp men is the sight of logs being charged into and discharged from the 62-ft. high, 10.5 ft. dia. vertical digester. The logs tumble into the 4-ft. dia. mouth from a conveyor at the top of the building, and in the "blow" are expelled with a tumultuous roar into the huge water pit below.

The huge carbon steel vertical digesters were made by Bethlehem Steel Co. at Quincy, Mass., and were moved on the last stage of their journey with some difficulty along narrow highways to East Millinocket. Special efforts were made to move the bulky sections at off-peak traffic hours and special signs were on each vehicle asking indulgence of motorists, explaining the equipment would bring benefits to the community.

The bottom of the digester has a 16 ft. dia., 50-ton door hinged on twin hydraulic lifting cylinders. It is kept in position by 42 bolts, each with its own hydraulic piston and cylinder. Pathon Mfg. Co. developed these cylinders to Great Northern requirements. The bolts are suspended from a piston rod by a free swinging pin. A locking ring surrounds the lower digester periphery and serves as a safety lock to prevent the bottom cover from opening in case of pressure loss in the hydraulic system. Two hydraulic pistons at 2800 psi operate the locking ring.

Four ft. hardwood logs ride the Link-Belt inclined conveyor to the top

YOU'RE LOOKING DOWN chemi-groundwood digester with PULP & PAPER editor as he leaned over 4 ft. charging door to take this picture of "clean blow". Logs can be seen floating in water-filled "blow" pit.

of the building where a rotary turntable directs them into one of 6 hinged chutes and into the 4 ft. dia. digester charging door. The digester is filled 60% with a pad of water to break the fall of the wood. The hardwood builds up, and as the level rises the water is gravity drained by motor operated valves to the water padding tank.

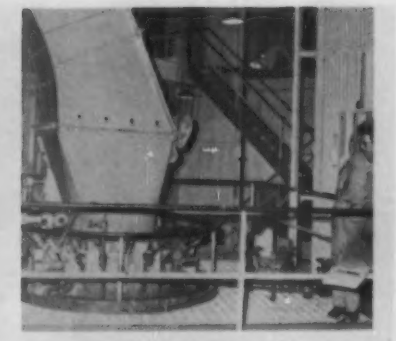
A Stromberg-Carlson speaker system operates between the woodyard, the top of the digester and the operating floor. The operator at the top of the digester directs lowering of the padding water and shuts down the conveyor when the digester is full of logs, after which the cover is bolted on.

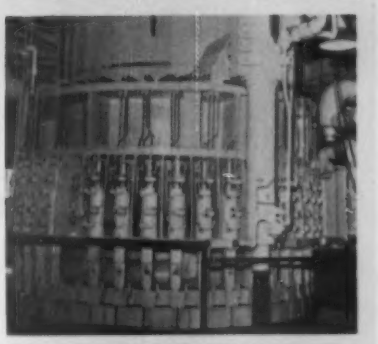
HOW LIQUOR IS PREPARED—The Diamond Alkali slurry handling system is of special interest in liquor preparation as it is said to be one of the first such installations in the industry. In its unloading feature, flexible rubber hoses are attached to the bottom of rail cars and dry bulk soda ash is pulled by a Nash vacuum pump into the top of the slurry storage tank. As the soda ash is pumped into this 40 ft. dia. by 34 ft. high steel tank it is separated from the air by recycled soda ash solution. A slurry forms at the tank bottom and a level of supernatant saturated soda ash solution is maintained.

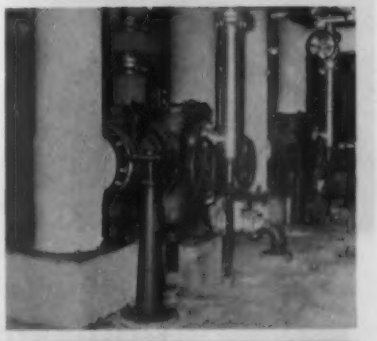
When a slurry bed of soda ash exists in the tank bottom, it will remain saturated at about 3.6 lbs./gal. at 125°F. Automatic water controls maintain a constant level. Soda ash can be drawn off at various tank levels and pumped to one of the two 12 ft. by 13 ft. 10,000 gal. capacity sulfiting tanks and diluted to 1.8 lb./gal.

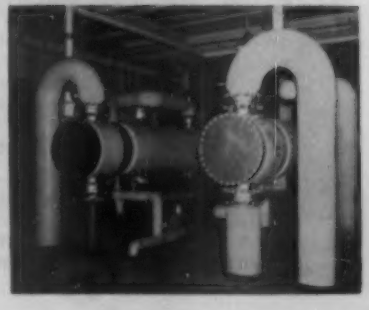
Sulfur is unloaded through regular hopper railcars into an underground hopper and onto a Link Belt 30-ton per hr. screw conveyor and then into a Link Belt bucket elevator and up to the top of the 900 ton capacity 30 ft. dia. by 56 ft. William Neil concrete sulfur storage tower. Of additional interest here is the spiral chute which breaks the fall of the sulfur and cuts down dust. Safety factors in the sulfur silo include Johns-Manville Transite windows at two levels which will pivot or blow out to relieve explosions in the structure.

Sulfur is conveyed into a Tower Iron Works weigh hopper and into two Hamilton melters and flowed to









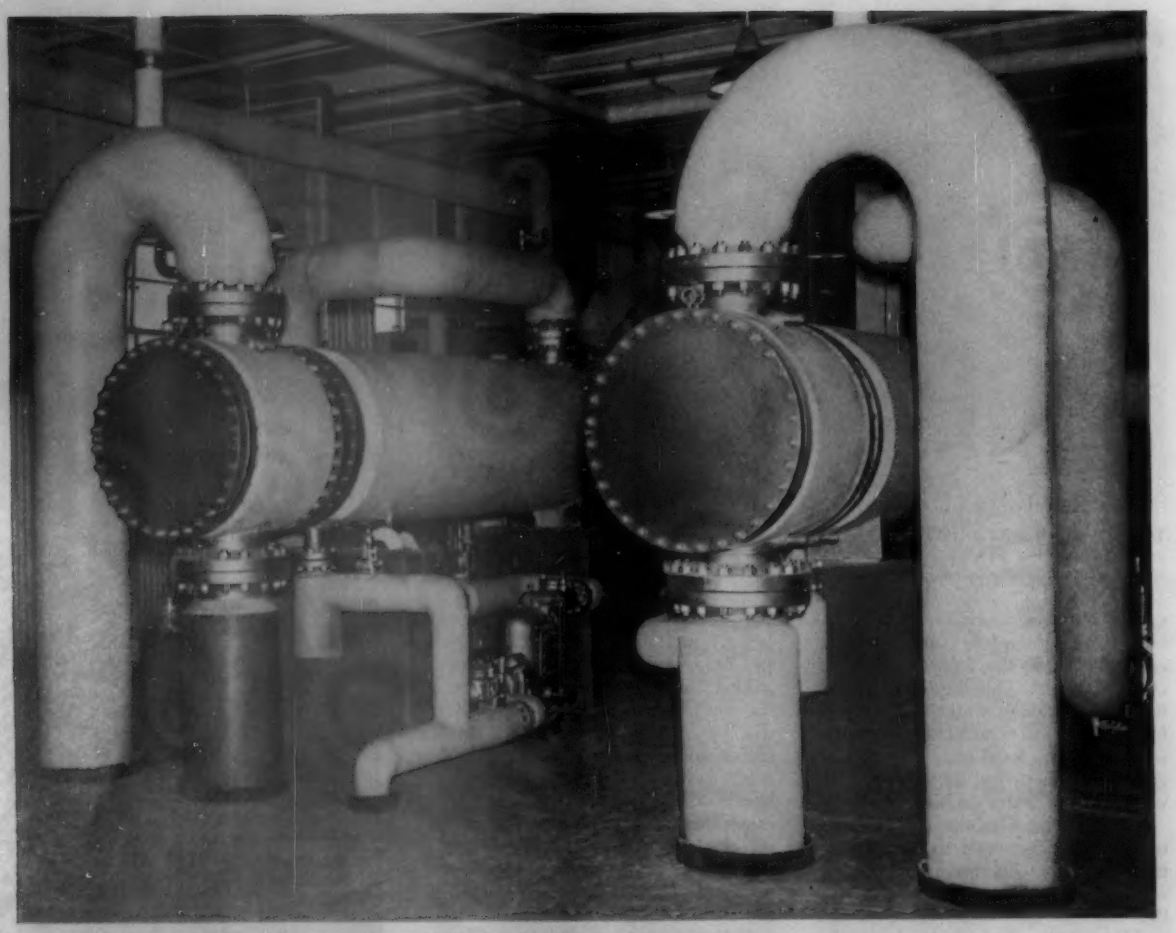
(Top) **4 FT. LOGS TUMBLE** into 4 ft. charging mouth of digester through hinged chute as operator watches. He directs lowering of padding water and shuts down conveyor when digester is full.

(Second) **HARDWOOD LOGS ARE COOKED** in this vertical digester. This is bottom of digester showing 42 bolts, each with its own hydraulic piston and cylinder. Bolts are suspended from a piston rod by a free swinging pin. A locking ring surrounds periphery of digester and acts as a safety lock preventing bolts from opening.

(Third) **ELLIOTT TWIN-STRAINERS** handle cooking liquor from digesters and strain around 100 lbs. of wood knots, bark and splinters at about 2000 gpm each cook.

(Fourth) **BOLTS HOLD 50-TON BOTTOM DOOR** on chemi-groundwood digester in place. At atmospheric pressure operator moves a lever on the digester which activates the locking ring which then permits the 42 bolts to be disengaged.

(Bottom) **COOKING LIQUOR** is recirculated by Ingersoll-Rand pumps from top of digester through Elliott twin strainers, also through these Struthers-Wells heat exchangers, then back into bottom of digester. Pipes and exchangers are insulated by Unibestos.



Unibestos provides low cost, effective insulation for pipes and exchangers used in the Great Northern chemi-groundwood plant.

Unibestos reduces application costs on bends and joints

Here is a stronger, longer lasting insulation that can be cut and mitered for quick, easy insulation of bends, expansion joints, tees, ells and other fittings. A minimum of cementing is required at the joints because UNIBESTOS' long, interlacing fibers form positive heat seals.

Unusually durable, Unibestos withstands vibration and impact... remains unaffected by acid and chemical fumes so often encountered in the paper industry... can be removed and reused as often as necessary.

Greater Efficiency with Unibestos®

Amosite, the well known South African asbestos with the long resilient fibers, gives Unibestos its superior insulating qualities. Heat loss at the joints is minimized due to interlacing of fibers.

Standard Production Sizes

Unibestos Pipe Insulation is regularly made in 3-foot lengths for pipe sizes from ½" through 24", in standard thicknesses through 5". Unibestos Block Insulation is made in 6", 12", 18" or 36" widths and in thicknesses from 1" through 3" in ½" increments.

In its multimillion dollar expansion program, the Great Northern Paper Company utilized Unibestos to provide efficient insulation for many processes.

For complete information, write for descriptive Bulletin 109C

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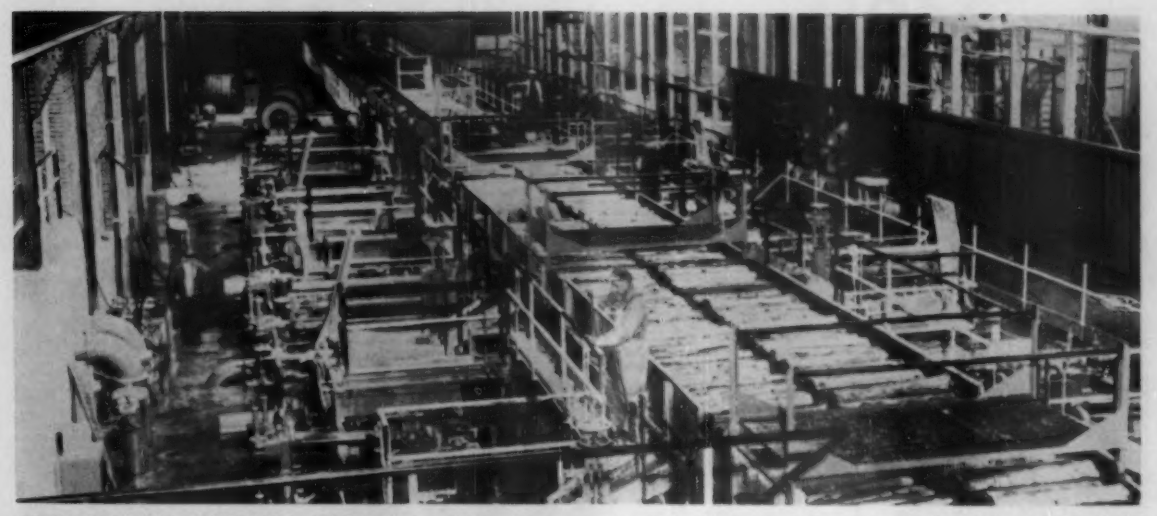


CHEMI-GROUNDWOOD LOGS ARE FED to grinders by a dual, single strand Link Belt chain conveyor. Softwood logs are floated in (foreground). Separate grinding and screening facilities are maintained for both.

the molten storage tanks. From here it is delivered by a Coppus Engr. Corp. steam turbine driven pump into the Chemical Construction spray type sulfur burner, which has a 22,800 lb. per day capacity.

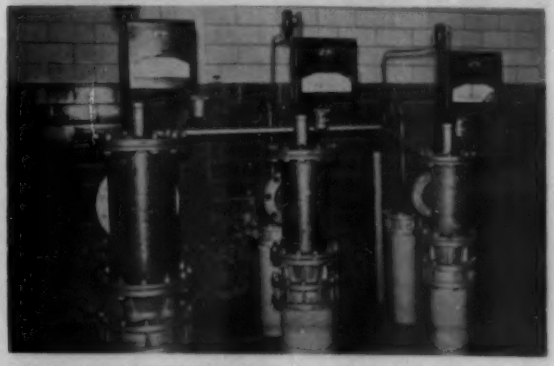
The soda ash solution is circulated through a Rockwell 6 in. 4-way valve to the top of the 3 ft. 6 in. dia. by 13 ft. 2 in. high absorption tower. The solution at the top of the tower absorbs the sulfur dioxide gases which enter through the bottom.

This tower is of special design by Stone & Webster with ripple tray effect to handle ash at relatively hot temperatures (175°F.). The solution is recirculated to the sulfiting tank until it has picked up the required sodium sulfite. A spray in the bottom of the tower cools gases before they go into absorption areas of the tower.

HOW COOKING IS DONE—After

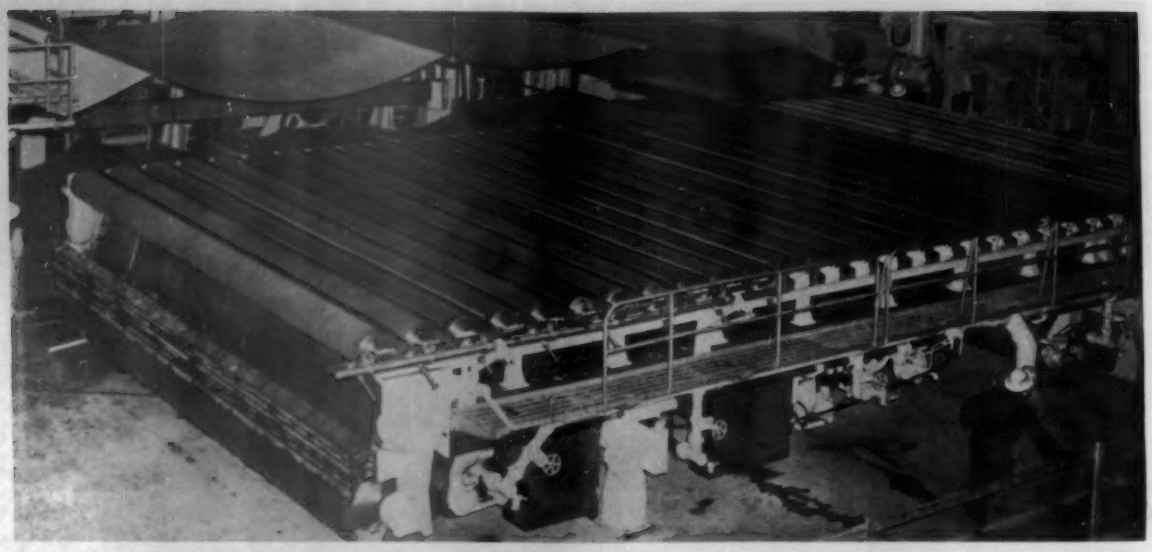
GROUND PULP FLOWS through these eight Bird Machine Jonsson type vibrating bull screens. Half are on softwood and half on hardwood.

THESE IMPCO VALVELESS thickeners are believed first in U.S. on newsprint and have advantage of not requiring drop legs. Decker vats were built by Chemical Linings, Inc.



BLENDING IS DONE HERE for sulfite, chemi-groundwood and groundwood stocks by Fischer & Porter stock proportioning system keyed by flow of groundwood.

THESE TEN SHARTLE Selectifiers can remove better than 95% of shives, say Great Northern operators.



ENTIRE FOURDRINIER CAN BE REMOVED as a unit with all table rolls, savealls and suction boxes. All Fourdrinier parts exposed to white water and mist are stainless steel clad. Table rolls covered by Stowe-Woodward.

the digester is loaded with wood, the cover is bolted on and vacuum is pulled by a Nash pump at 27 in. to 28 in. of mercury. This is one of the secrets to successful penetration, says Great Northern, as evacuation tends to work some of the air out of the wood and aids liquor penetration considerably.

At the end of the vacuum cycle, the cooking liquor is introduced without breaking the vacuum. This is done by steam padding the accumulator. The digester must be completely full of the cooking liquor before starting the cooking cycle.

Liquor is circulated by an Ingersoll-Rand pump from the top of the digester through Elliott twin strainers and a Struthers-Wells Corp. heat exchanger, and back into the bottom of the digester.

Cooking temperatures range between 265°F and 310°F according to wood species. A hydrostatic pressure of 150 psig is maintained throughout the cooking cycle. Pressure is controlled automatically through a diaphragm operated Mason-Neilan pressure control valve at the top of the digester.

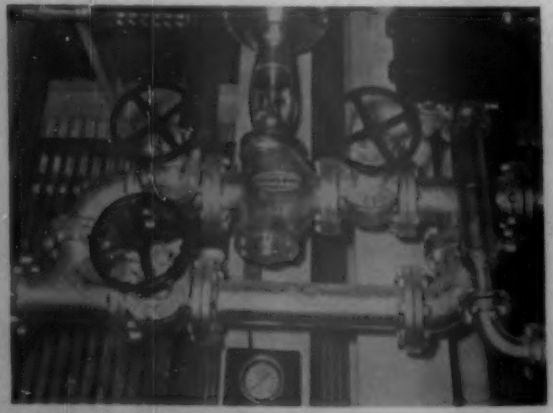
A departure from tradition is the location of the operating floor at the bottom of the digester and of particular interest is the Foxboro graphic control panel where the entire liquor preparation and cooking processes are remotely controlled. Eventually the entire pulp mill will be remotely controlled from this panel. Even the valves are motor-operated. From this panel the cook has instantaneous control over all cooking operations.

Foxboro also supplied the specially-designed holding timer which controls the steam valve which admits steam to the heaters, and through which the rate of rise can be controlled. After the desired temperature has been reached, the holding timer holds that temperature for any amount of time up to six hours.

Another instrument of special interest is the Foxboro Multi-Record Dynalog. Up to six related temperatures can be recorded on one circular chart. It saves panel space and simplifies comparison of records, say operators at Great Northern. One pen arm magnetically picks up six different nibs in sequence and records temperatures in six colors.

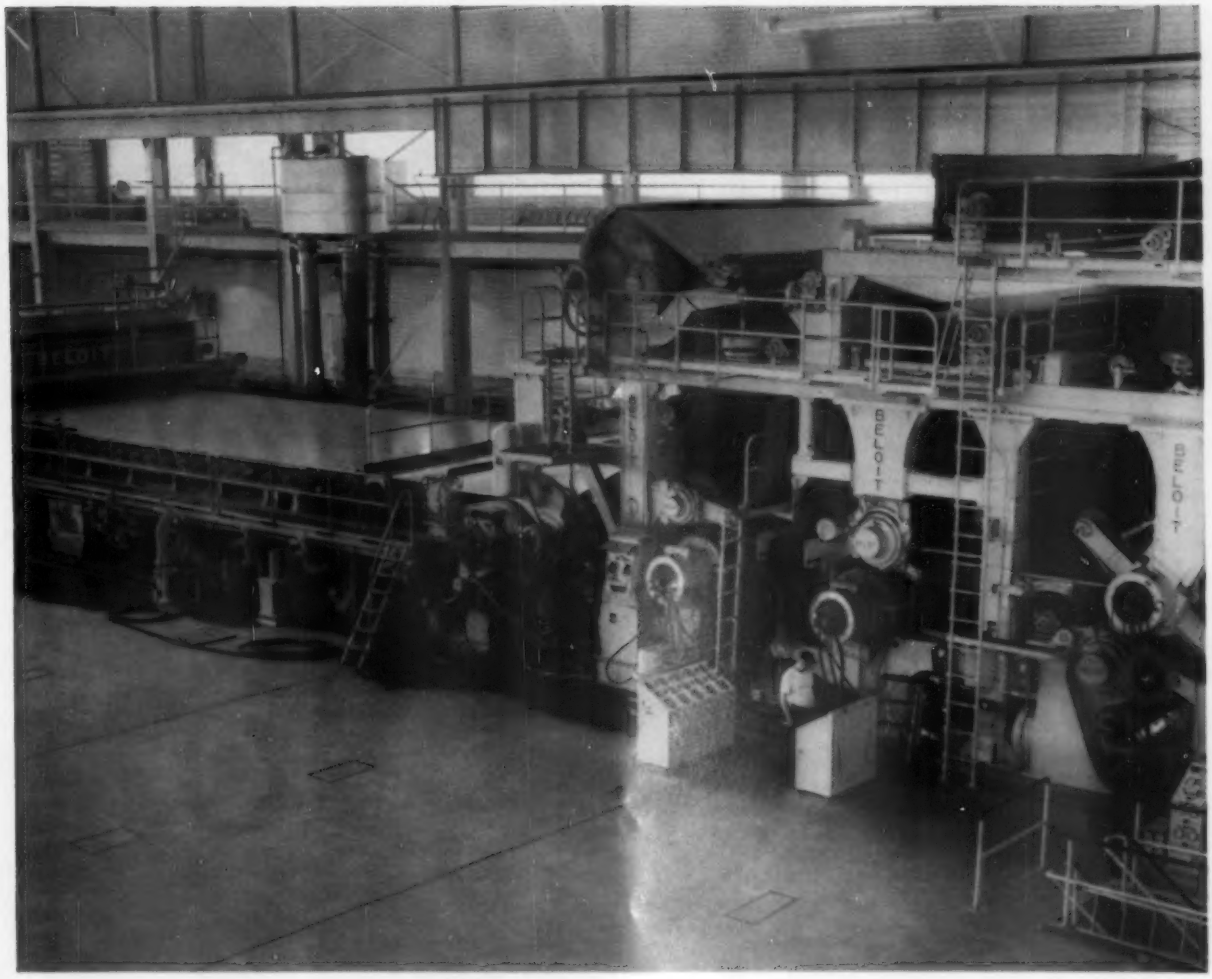
A Minneapolis-Honeywell Brown Electronik gives the operator control and visual observation of process temperatures at a possible 24 locations.

A light on the cooking panel shows when the desired cooking time has elapsed and the steam supply to the



MASON-NEILAN SUPPLIED this regulating equipment on Ross-Midwest Fulton paper machine dryer drainage system on Great Northern's No. 5 machine.

BIG LOBDELL UNITED No. 5 CHV roll grinder went into operation on its first roll from the 276 in. paper machine during PULP & PAPER's visit at Great Northern.



READY TO ROLL Now in production at Great Northern Paper Company's mill in East Millinocket, Maine, this Beloit Vacuum Transfer press section for newsprint holds promise of new records for dryness, safe running, and high speed.—*Beloit Iron Works.*

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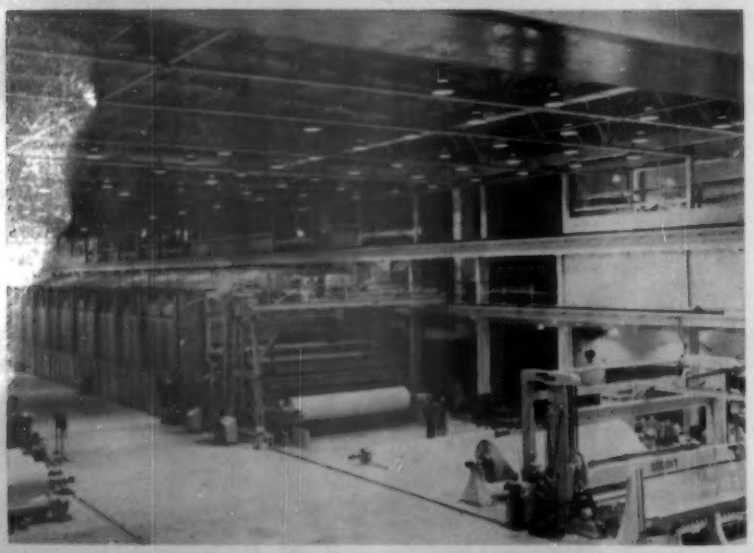
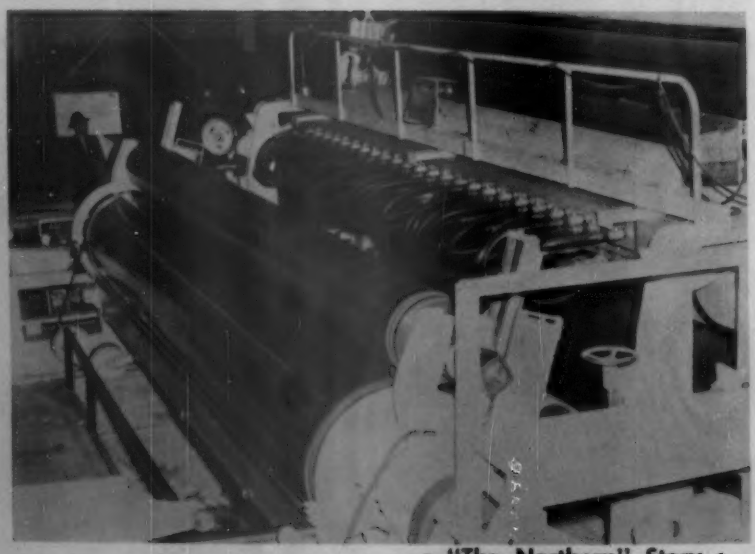
PAPER MACHINERY





heat exchanger is automatically shut off. Circulating and pressurizing pumps are shut off and a 2 in. by-pass line around the main blow valve is opened until the hydrostatic pressure is released to about 75 psig. The main 10 in. blow valve is then opened wide and the liquor is blown back into the accumulator. As the digester pressure begins to approach that of the accumulator, it is necessary to apply steam pressure to force the remaining liquor back into the accumulator. One of the advantages of this system is heat saving. Liquor is re-used back and forth and steam consumption is at a minimum.

At atmospheric pressure the operator moves a lever on the digester which activates the locking ring. When the 42 bolts are disengaged the 50-ton door slowly swings open and the cooked logs plunge into the 20 ft. deep water-filled pit. Great Northern explains that the water stops the cooking cycle of the wood. It also leaches additional liquor out of the wood.

The present two digesters discharge into one pit. Three pits will be used for six digesters when others are added.

To show a PULP & PAPER editor that they get a "clean-blow," they took him (not without some misgiving on his part) into the very bottom of the digester and let him examine the digester sides.

A Whiting bridge-type crane with an Owen orange peel grapple moves about ¾ cord at a time from the water pit to the Link Belt chain conveyors.

Cooked logs travel to an Allis-Chalmers Stream Barker for a possible final clean-up but can be by-passed direct to the conveyor to the grinders when desirable.

GRINDING AND ITS EFFECTS— Chemi-groundwood and softwood groundwood are kept separate until

(Top) **WHERE NEW AIR BLEED IS USED**—Inverse third suction press by Stowe-Woodward, features Beloit's "air-bleed" principle which reduces wire mark and lessens "two-sidedness". "Air-bleed" helps make possible high speed papermaking.

(Center) **DRY END OF MACHINE**—Ross-Hooper enclosed type paper machine hood is built in four lifting sections, which can be raised or lowered separately. Beloit designed rugged open side calender stack with Farrel-Birmingham rolls. Panalarm system and Masoneilan steam pressure recorders are at dry end of machine (at front end of hood near calenders.) Rolls free from "starring" and "interweaving" are made possible on Beloit's "L" winder by operator controlled pressure by driven ride roll.

(Bottom) **HIGH PRESSURE CALENDER** cooling system is by Ross Midwest-Fulton with valve controls at the reel. Each nozzle has individual and automatic controls from back side.

they are blended with sulfite pulp just ahead of the paper machine. Separate grinding and screening facilities are maintained for each.

There are 8 Great Northern Waterous 67 by 54 in. grinders in four lines in the new 305 by 123 ft. grinder building which can eventually house 16 grinders. Built by Montague Machine Co., each is driven by a Westinghouse 6,000 hp motor. Any grinder can be put into either system. At present six grinders are operating on softwood at 40 tons each per day rating. Two grinders in one line are on chemi-groundwood, rated at about 80 tons each per day.

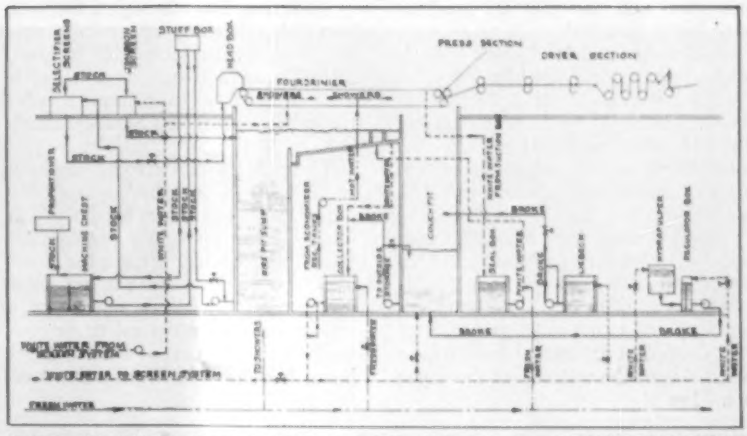
Hardwood logs are fed to the grinders by a dual, single strand Link Belt chain conveyor. Softwood is floated to its grinders. Governors on grinders maintain proper electrical load and grinder loading pressure.

Chemi-groundwood logs are soft and pliable and do not produce friction temperatures normally found in grinding raw wood. Operators say it is more of a "picking-off" process. Doubled production of a chemi-groundwood grinder necessitates an increased flow of warm shower water to keep the pit at safe operating consistency and temperatures. PULP & PAPER editors at the scene noticed that chemi-groundwood pulp is about the same brightness to the eye as soft-wood groundwood. Actually, regular groundwood is about 57 GE brightness and chemi-groundwood slightly lower. It takes about 30 to 32 hp per ton to grind chemi-groundwood.

Norton stones of open structure, 60 grit, 38 alundum (aluminum oxide), have produced the best results.

Process instrumentation in the grinder room is by Foxboro with Panalarm warning systems.

HOW PULP IS SCREENED—Chemi-groundwood pulp leaves the grinders at a freeness of about 350 to 500 cc Canadian standard. The ground pulp, both chemi and regular, flows through



FLOW DIAGRAM FOR GREAT NORTHERN'S 762 In. BELOIT MACHINE SYSTEM.

Chemical Linings tile troughs to a battery of 8 Bird Machine Jonsson type ¼ in. perforated vibrating bull screens. Half are on hardwood and half on softwood.

Coarse rejects are shredded in three 36 by 24 in. Jeffrey Mfg. Co. shredders, and are pumped in a water slurry to Bauer refiners. Accepted stock is screened in primary and secondary Cowan screens. Screen rejects are thickened by Allis-Chalmers LoHed vibrating screens before passing to 3 double-disc Bauer reject refiners with dual 300 hp General Electric motors. Refined stock goes to Bauer Cleaners (formerly Centri-Cleaners). Refined stock returns to the Cowan screens.

Two 11 ft. 6 in. dia. by 20 ft. Impco valveless deckers are rated at 100 tons each daily on the regular softwood groundwood. These valveless deckers are believed to be the first in the U.S. on groundwood pulp and have the advantage of not requiring drop-legs. Decker vats were furnished by Chemical Linings Inc.

Chemi-groundwood stock goes to three 9 ft. 6 in. by 12 ft. Impco vacuum deckers, with tile lined vats by Chemical Linings. Three shower pipes on each thickener wash residue chemicals from the pulp and the stock is then discharged into tile tanks in the basement.

Stebbins Engineering & Mfg. Co. constructed three Semtile chests in the screen room basement, each unit 80 ft. long and 17 ft. high. One chest is for groundwood, one for white water, and a third for chemi-groundwood. Interior joints of the latter are of Stebbins acid resistant resin mortar rather than its standard chemically hardened Portland cement joint material used on groundwood units.

These chests are unique in that the chest walls are tied into the building structure as load-bearing walls in addition to restraining the hydrostatic head.

NEW FEATURES IN PAPER MILL—There are many "firsts" and "near-firsts" in the paper machine room at East Millinocket. The Northern carefully selected equipment for what they considered would be the ultimate in a paper mill.

The 502 by 144 ft. machine room is all tile lined and is designed to house the 276 in. machine now in

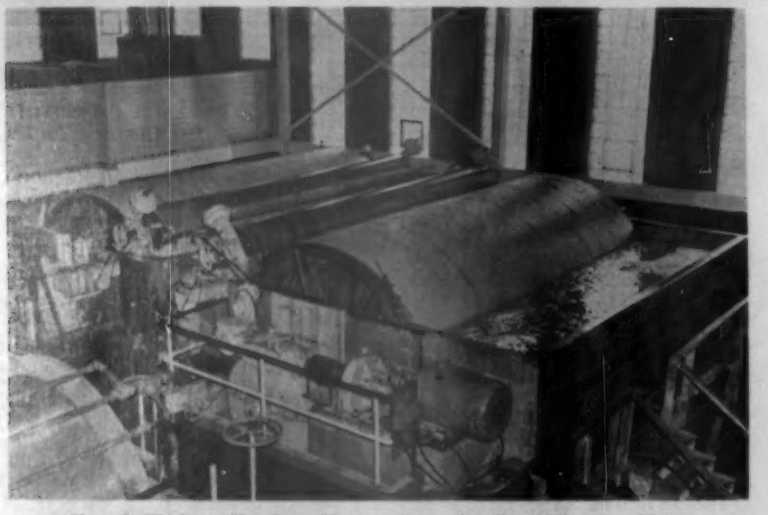
operation and the 290 in. machine now being installed.

Sulfite, groundwood and chemi-groundwood stocks are blended prior to machine chests by a Fischer & Porter stock proportioning system keyed by the flow of the groundwood stock. Present ratio for newsprint furnish is around 60% groundwood, 10% sulfite and 30% chemi-groundwood.

Blended stock flows to the Stebbins tile-lined Impco agitated machine chest and is then moved by a Goulds 78 ft. head, 100 hp, 2,830 gpm capacity pump to the stainless steel stuff box located at mezzanine level on the back side of the wet end of the paper machine.

Stock then flows through a DeZurik Vee-Port valve regulator to the suction of an Ingersoll-Rand 107 ft. head, 25,000 gpm, 800 hp pump where it mixes with white water from the wire pit and then enters the Shartle Selectifiers.

These Selectifier screens are fed from a single inlet header and discharge to a single main header which feeds the paper machine pressure inlet. These particular screens for newsprint application feature a self-purging continuous bleed reject valve arrangement. All reject valves are controlled from the central control panel board to the left of the wet-end control panel.



Chemtile Thickener Vat, Great Northern Paper Co., East Millinocket, Maine

The ten Selectifiers are the first such installation on a newsprint machine, and operating personnel say they can remove up to 95% of shives. An electric timing device operates through a solenoid-activated pneumatic system at set intervals to open in sequence a rejection valve for each centrifugal screen. Tailings are then passed over a Bird Jonsson screen.

From Selectifiers accepted stock passes through a Beloit patented teardrop stream flow valve, air-motor operated, and is introduced into the headbox through a patented cross-flow distributor. Air pressure maintains constant stock level in the headbox. Latest design self-cleaning rectifier rolls control the approach flow to the slice. "Foam-killer" showers have also been installed.

Wire and couch pits were also lined by Stebbins with 2 in. Semplate. Some of the baffle walls and midfeathers in the wire pit are 6 in. Semtile which reduced costs of forming these walls with concrete.

The 276 in. Beloit machine is designed for maximum speed of 2500 fpm, and is the first newsprint machine designed to operate at such high speeds. It carries a wire 276 in. wide, 137 ft. long. Although longer and wider wires have been woven, this is the largest square footage woven. The Fourdrinier wire doesn't shake but features oscillating suction boxes with end of grain maple covers.

The entire Fourdrinier can be removed as a unit with all table rolls, savealls and suction boxes. All Fourdrinier parts exposed to white water and mist are stainless steel clad.

Stowe-Woodward covered the table rolls. The wire return rolls are centrifugally cast bronze. Vacuum on the 12 in. flat boxes is obtained by a Nash K-9, 125 hp pump for 3,500 cfm at 10 in. vacuum. Eastwood-Nealley supplied the suction box conditioner.

There are two suction boxes in the couch roll; the first box has a pump 16 by 35 type RCV at 150 hp, capacity of 5,140 cfm. Pumps on the second box are a 20 by 44 in. and an 18 in. by 28 in. type RCV-2 with 400 hp at 10,000 cfm at 25 in. vacuum. The suction pickup has a 250 hp L-11-A pump with capacity of 5,400 cfm at 15 in. vacuum. The latter is a Nash pump, the others Roots-Connersville.

The automatic suction transfer roll eliminates the open draw between Fourdrinier and press section and makes possible the high speed transfer of the sheet from Fourdrinier into press section. An unusual feature is the passing of the sheet straight through the transfer and second suction press.

Nash H-12-A 250 hp pumps ca-

GREAT NORTHERN PAPER CO.
EAST MILLINOCKET, MAINE

ROLL FINISHING SYSTEMS

Increased production and limited storage areas require a well organized roll finishing department which is the prime requisite for providing a regulated flow of rolls and quality packages with a minimum cost.

Lamb roll finishing systems have been developed to handle and convey pulp and paper rolls in the most efficient manner from the winder to the warehouse or shipping medium. The wrapping equipment is designed to process rolls of varying sizes and wrapper specifications in any sequence without loss of time. Although the basic finishing procedure is essentially the same for different manufacturers, each installation is designed to suit the particular requirements of the individual plant.

The Lamb roll finishing systems are engineered and furnished as complete package units, including all necessary equipment and controls. Competent engineers supervise erection and train operating and maintenance personnel to assure the desired results.

Recent installations of LAMB Roll Finishing Systems have been made at:

Buckeye Cellulose Corporation
Great Northern Paper Company
Ketchikan Pulp Company
Rayonier, Inc., Jesup Division
Weyerhaeuser Timber Company

LAMB

LAMB-GRAYS HARBOR Co., Inc.
Hoquiam, Washington

pacity of 11,200 cfm are on the first two presses. The third press has a Nash L-11-A 250 hp capacity of 5,300 cfm at 10 in. vacuum. Suction press rolls were rubber covered by Woonsocket. The third inverted press is a Stowe-Woodward Stonite.

NEW AIR BLEED FEATURE—The inverse third suction press features the Beloit air bleed principle. It is right in this section where so much interest is centered today, for paper machine builders are doing many things to increase speeds beyond those once thought possible. (This air bleed principle was first described in PULP & PAPER, Nov., 1954.) Basic principle of the air bleed press is to keep the sheet away from the felt except at the nip itself so that air can bleed down through the felt at both the incoming and outgoing sides of the nip. The use of this third inverse suction press reduces the wire mark and lessens "two-sidedness."

A suction wringer roll, covered by Stowe-Woodward, aids in continuous cleaning of the suction pickup felt. Vickery felt conditioners are on second and third felts.

An unusual installation in the press section is a horizontal broke conveyor which transfers broke to another conveyor where it is taken to the E. D. Jones Liebeck pulper tank lined by Chemical Linings.

NEW FEATURES AT DRY END—The dryer section consists of three sections of 18 rolls each, 60 in. dia. with a separate drive for each section, the 54th roll being a sweat roll. There are also 8 Feeney and 6 felt dryers. All dryers have Beloit high-speed condensate removers and duplex steamfits. Dry and broke is repulped in an 18 ft. Shartle Hydrapulper.

Front and back dryer framework is of extra heavy duty box-type construction. Driving gears for each section are completely enclosed. All dryers are carried in anti-friction bearings rocker mounted for expansion.

The Beloit-designed rugged open side calender stack has Farrel-Birmingham rolls mounted in anti-friction bearings. It is designed for nine 18 in. dia. rolls plus a 40 in. dia. king roll. All except the king roll can be used as steam rolls. The calender has a tension indicator for constant visual indication of sheet tension. Calender and reel units have slack take-up, for instant adjustment of any slack loop.

The calender also has a Ross Midwest-Fulton high pressure calender cooling system with valve controls at the reel. Each nozzle has individual and automatic controls from the back.

The Beloit heavy duty reel is designed to wind a roll equal to three 40 in. winder sets. Reel design insures constant roll hardness in both starting and secondary positions. The heavy duty unwind stand combines tension control with all necessary adjustments to align reel spools across the machine and in the machine direction.

The Beloit model "L" winder is designed for speeds up to 5,000 fpm and has a Westinghouse motor driven roll ejector, slitters and rider roll. These features coupled with automatic shaft pullers, overhead shaft transfer and roll lowering table are all of the latest design and reduce manual labor to a minimum. Tightly started paper rolls free from "starring" and "interweaving" are made possible by Beloit's paper run combined with operator controlled pressure by a driven rider roll. Effective adjustment of relative drum speeds gives complete control of hardness through roll set.

DRIVES AND NEW-TYPE HOOD—The entire machine is driven by a Beloit differential mechanical gear drive with Westinghouse helper drives. A General Electric steam turbine is the prime mover through a line-shaft at machine floor level, connect-

for GREAT NORTHERN'S

new #5 machine

BY BELOIT IRON WORKS

FIVE CARLOADS

of

"Rubber Rolls with a Reputation"

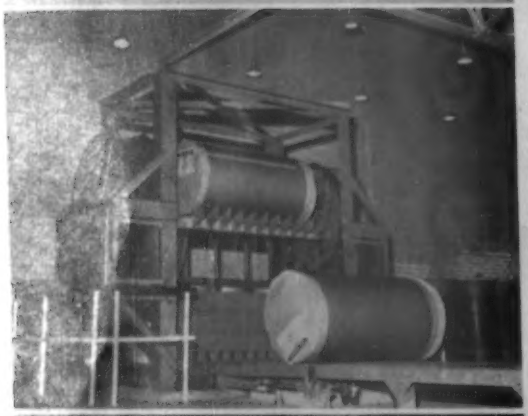
BY

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN - NEWTON 64, MASS. - GRIFFIN, GEORGIA

ROLL HANDLING is completely engineered by Lamb-Grays Harbor. Automatic belt conveyors carry rolls to finishing line. Wrapping paper on overhead backstand leaves working area clear. Backstand holds dispenser unit which feeds wrapper down automatically.



FLOW OF ROLLS after wrapping is by conveyor to scales for weighing. Rolls then pass down inclined ramp to deck stop which automatically feeds a Lowerator which takes them to the train shed below.

LOWERATOR FEEDS ROLLS at car loading level of Lamb-Grays Harbor system to this two-roll upender which places rolls in upright position. Here poised Clark gasoline truck with Bartel clamp awaits roll for movement into railway car.

ing the gear units along the drive aisle. This differential gear drives all sections together, holding draw control by Link Belt Co. PIV units. All gears are heat-treated and have generated teeth. Remote draw control is on the front or tending side of the machine.

The entire dry end of the machine is serviced by a central lubricating system and in addition each differential drive unit has its own sump oil pump for continuous and positive lubrication.

Striking feature in the room is the totally enclosed dryer hood, the first such installation in the U.S. There are some 14 installations of this Ross-Hooper enclosed type paper machine hood in Canadian paper mills, developed by F. W. Hooper, vice president of Ross Engineering of Canada, Ltd.

Savings represented by this type of hood are obvious. More uniform drying resulting from the prevention of drafts can be completed with a smaller volume of air than needed on open type hoods. This air must be heated to a higher temperature to provide moisture carrying capacity.

Briner economizers are more efficient in heating the incoming air when the exit air is at the resulting higher temperature.

The front side panels of the aluminum hood are built in four lifting sections, which can be raised or lowered separately. They are also arranged for automatic lifting when electric eyes detect a break at the wet end or at sectional draws. The back section slides open in several units. The top of the hood is insulated with 3 in. glass wool batts. Buttons for controlling each panel are on posts, and a central control panel is at the dry end. Panels are counter-weighted and are raised by four 2-hp. motors.

The basement under the dryer section is also enclosed. This enclosure is made of aluminum panels, not insulated. Entrance doors are provided at convenient points.

ROLL HANDLING IS AUTOMATIC—The finishing room was laid out and equipped by Lamb-Grays Harbor Co. of Hoquiam, Wash., with a view to achieving maximum efficiency and economy of manual operation. Rolls of paper are ejected from the winder to a stripping conveyor. Here the roll shaft is held and the rolls withdrawn from it and sent to a steel sorting deck, which is inclined and equipped with 15 push button controlled roll stops, enabling the operator to select the roll desired for finishing. The roll selected rolls onto a belt conveyor which is the first of five completely automatic belt conveyors which carry the rolls to the roll finishing line in the finishing room.

At the wrapping machine a push button controlled roll stop delivers rolls onto the powered wrapping rolls. Wrapping paper is accommodated in five widths on a backstand located overhead and is supported from the roof trusses leaving the working area entirely clear. The backstand framework holds a dispenser unit which feeds the wrapper down automatically. The body wrapper is guided around the newsprint roll which is being rotated by the powered wrapping rolls. When the desired number of wraps has been made a push button operates a cutoff. The end bands, located behind the working level, are wrapped around the roll in a similar manner. Heads are inserted and the ends crimped by hand. The roll is then thrust forward to the header by a pneumatic kicker.

The roll header is hydraulically operated and temperature and pressure are automatically controlled. A vacuum system holds the "outside" heads in place as a roll enters the machine. The heading operation is automatically controlled by the push of a button and ends with the roll being ejected from the header to a roll deck. Flow of the finished rolls from

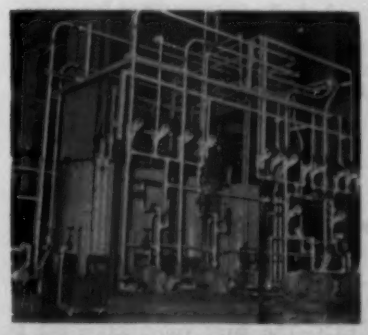
the deck to a conveyor is by means of a deck stop. The rolls are carried by the conveyor over scales and weighed. From the scales the rolls pass to an inclined ramp where a deck stop automatically feeds a Lowerator which carries them to the train shed located below. Here a two roll up-ender places the rolls in an upright position for movement into the railway car.

HIGH-PRESSURE STEAM PLANT MEANS MORE POWER—One of the most striking buildings at East Millinocket is the gleaming, silver aluminum-insulated boiler plant, said to be the highest steam pressure plant in the newsprint industry.

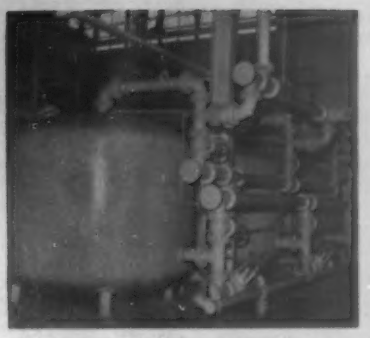
A Combustion Engineering, Inc. vertical unit boiler, type VU-50, is designed to produce 300,000 lbs. of steam per hour at pressure of 1300 lbs. and temperature of 855°F. It is adaptable for either oil or coal firing. It will be joined by a similar unit in the second expansion phase. Fuel oil is pumped in from outside storage by a Warren Steam Pump Co., Inc. pump to the American Locomotive Co. fuel oil heaters and heated to about 210°F. before being fed to the boiler.

The boiler at full rating will consume 2,750 gals. of oil in an hour. A Copes-Vulcan feed water regulator controls the flow of water to the boiler by an Ingersoll-Rand pump powered by a Westinghouse Electric Co. steam turbine.

A General Electric 12,500 kw turbine generator acts as reducer for 1300 lbs. steam by extracting at the ninth stage 200 psig through a 200 lb. header with a Swartout "Positioner." This 200 lb. steam supplies the turbines that drive all five paper machines. The turbines exhaust to a 40 lb. header with Mason-Neilan controls which supplies the mill with process steam. The G-E turbine also



FIRST STEP IN WATER TREATMENT plant is color removal and clarification. Here Milton Roy pumps proportionately add alum, caustic and silica to flow water in these Infilco tanks. Mixing Equipment Co. Lightnin mixers stir chemicals.



STEP IN WATER FILTERING—These three Infilco pressure sand filters are third step in clarification system. From here treated water goes to 30,000 gal. clearwell.

generates electricity up to 15,000 kw and this is tied in with the main Great Northern hydro-electric system.

Two Ingersoll-Rand vertical pumps with G-E motors and Chapman valves control two condensate storage tanks with a combined capacity of 22,000 gals.

There is a G-E oil system for the turbo-generator.

Main distribution panels in the power plant have Bailey combustion controls, Minneapolis-Honeywell temperature recording instruments and Hagan flow meters.

HOW WATER IS TREATED—The Cochrane Corp. deaerating, clarification unit is one of the most complete in the U.S. Great Northern, it is said, was the first paper company in the U.S. with a complete deionizing plant.

Capacity for water treatment is about 200 gpm which will supply the two boilers with 15% of make-up of ultimate boiler plant capacity.

Alum, caustic and activated silica are added proportionately by Milton Roy Co. pumps to the flow water in the Infilco flash mixer tanks for color removal and clarification. Mixing Equipment Co. Lightnin mixers stir the chemical solution. Retention time in the welded steel clarification tanks is approximately two hours at maximum capacity. Clarified water filters through three Infilco pressure sand filters into a 30,000 gal. clearwell.

Water is then pumped to one of two sets of Cochrane demineralizers; each set consisting of a cation and an anion unit. Capacity of these units is rated at 240,000 gals. of river water. Resins used in these units are supplied by National Aluminate Corp.

Upon exhaustion of these units there is an automatic regenerating cycle of 16 steps activated by one button. Demineralized water averages less than one ppm dissolved solids and less than five micromhos conductivity.

RAW WATER FROM PENOBSCOT RIVER is pumped in through these Ingersoll-Rand vertical pumps with Chapman control valves.

The water filter plant supplies process water for the mill. It is actually a screening operation to remove suspended solids in the river water. Raw water from the Penobscot river is pumped in through two 48 in. sluice gates with Chapman control valves by two Ingersoll-Rand vertical pumps, each having 15,000 gpm capacity.

A Link-Belt Co. traveling intake trash screen with ⅜ in. mesh removes heavier solids. Nine 14 ft. by 88 in. Green Bay North rotary water screens filter out additional solids. Each has a tap off into the water line. A Wallace & Tiernan chlorinator can treat 4,000 lbs. of water per hour. Capacity of the filter plant is 60,000 gpm or 90 million gals. per day.

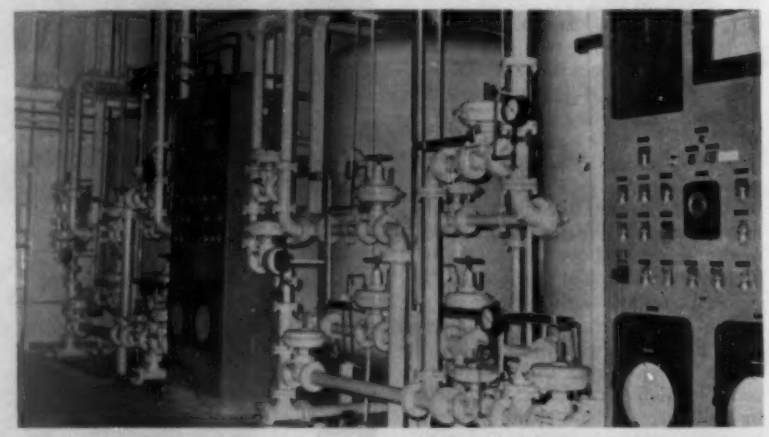
Two Ingersoll-Rand vertical water pumps move filtered water to various mill buildings. Fire protection for the mill is assured by two 2,500 gpm 125 lb. Peerless fire pumps.

Motors in the filter plant are 600 volt G-E motors except one Westinghouse 600 volt motor. Filtered well capacity is approximately 85,000 gals.

Foxboro Company supplied instrumentation and panels.

MANY INSTRUMENTS ARE USED—Instrumentation and automatic control are important features of the East Millinocket expansion. As an example of the extent of this, Great Northern figures show 10.4 miles of instrument piping; 10,000 instrument valves; 2.5 miles of instrument air piping; and 25,000 instrument fittings. There were 53.9 miles of electrical conduit installed and 209.7 miles of electrical wiring.

In the paper machine room alone, more than nine miles of electrical conduit and more than 52 miles of electrical wiring were used.



NEW DEMINERALIZERS HERE—Water is then pumped to one of two sets of Cochrane demineralizers; each set consists of a cation and an anion unit. Capacity of each unit is rated at 240,000 gals. National Aluminate resins are used.

Panalarm units by Panalarm Div. of Panellit, Inc. are on control panels in the grinder room, screening room, filter plant, steam plant, and paper machine room.

Foxboro designed the graphic control panel in the chemi-groundwood plant where liquor preparation and the entire cooking operations are remotely controlled.

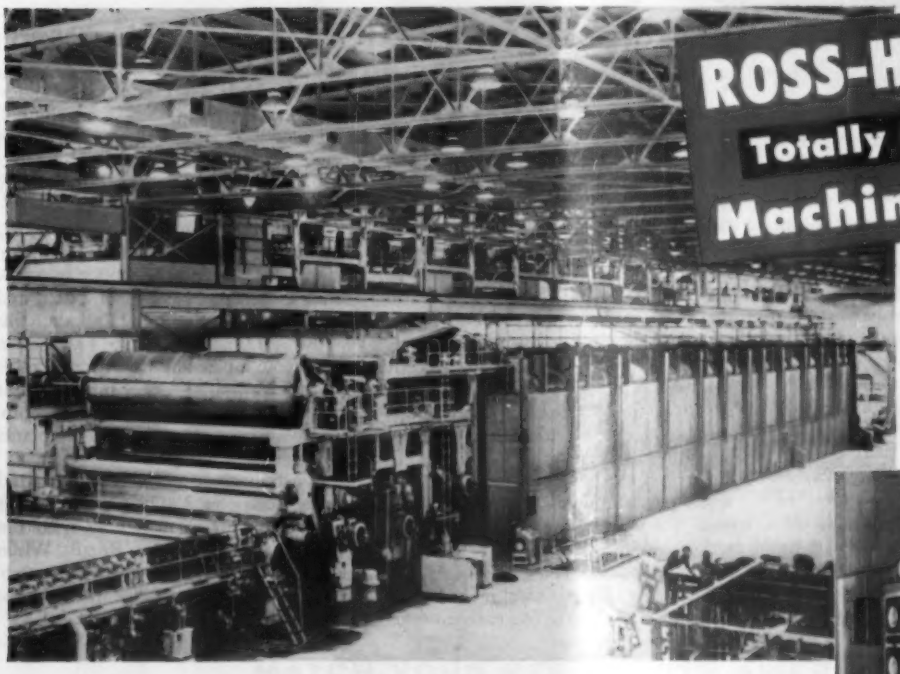
Mason-Neilan Regulator Co. furnished all instrumentation for governing drying rate on the paper machine as well as diaphragm control valves in the steam lines to the machines. They also supplied liquid level controllers and valves on the condensate removal end of the machine.

Mason-Neilan also supplied a large quantity of diaphragm control valves, liquid level controllers and pressure regulators for the steam plant and the chemi-groundwood mill.

CONSTRUCTION WAS BIG PROJECT—The large construction job in northern Maine was an engineering task that presented a challenge to Great Northern's own engineering group which was ably assisted by

GREAT NORTHERN'S new machine...

the industry's first in the U. S. A. to get the operating advantages of the



Above: Dry end, hood door being lifted for access to sweat roll.

Below: View of enclosed hood looking toward wet end.

with greater heat recovery, less fresh air and power is required

Great Northern Paper Company scores another "first" by completely encasing its entire 375 foot long machine in a totally enclosed ROSS-HOOPER aluminum sliding panel hood. Besides reducing air and steam requirements, other advantages secured are—better vapor confinement, reduced back pressure, fewer breaks and more uniform moisture content of sheet. Here's a machine ideally equipped to achieve an entirely new standard of performance.

In addition to the hood and complete ROSS MIDWEST FULTON Drainage System the machine room and practically all other rooms throughout the mill are equipped with the newest ROSS Systems for heating, ventilating, cooling and conditioning.

ROSS RS SYSTEMS

J. O. ROSS ENGINEERING CORPORATION

MANUFACTURERS OF AIR PROCESSING SYSTEMS

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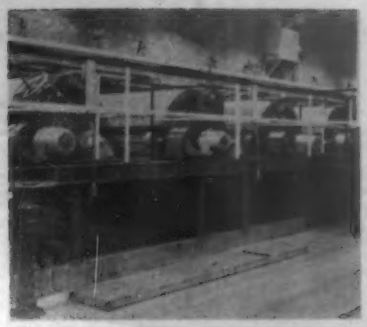

SUPPLIES PROCESS WATER—Nine Green Bay North rotary water screen filters in water filter plant which supplies process water for mill operations.

Stone & Webster Engineering Corp. The entire construction contract was awarded to Stone & Webster.

Labor scarcity was one difficulty with which the company had to contend in sparsely settled northern Maine. Difficult weather operating conditions such as frozen ground, thawing muds and one of Maine's wettest summers were other obstacles.

Through all of this, a peak crew of 1800 men drawn from as far away as Pennsylvania operated 55 trucks, 14 cranes, 7 bulldozers, dozens of welders, compressors and pumps for a total of 4,500,000 man-hours without a fatal or permanent disability accident.

All stainless steel piping was fabricated by Artisan Metal Products, Inc., who also built the chemi-groundwood absorption system. Bancroft & Martin Rolling Mills Co. supplied the conveyors in the woodyard system as well as structural steel and miscellaneous steel throughout the entire mill. Portland Copper & Tank Works furnished the stainless steel fittings in the paper machine room. Steel piping fabrication in the boiler house was by Midwest Piping Co., Inc., as well as wrought iron and steel fabricated pipe in the filter plant.

Great Northern Paper Co. is now embarked on the largest development project in its 55 years based on the success of chemi-groundwood. Increased capacity will be a minimum of 155,000 tons annually bringing total production to around 560,000 tons. Their two new newsprint machines at East Millinocket will be the world's most productive when they reach designed capacity of 2500 fpm.

Out of every 100 newspapers in 1954, 79 were on Canadian paper; 15 on other U.S. paper and six were on Great Northern paper. What those figures will be in 1955 is anybody's guess; suffice to say that the Northern is out to increase its share.

NEW TURBINE—General Electric turbine generator in power plant is 12,500 kw non-condensing with 200 lb. extraction stage and back pressure at 40 lbs. psi.

Background on West Va.'s Big Expansion

• A major factor behind the vast expansion program of West Virginia P & P and its major subsidiary, Hinde & Dauch—the latter in both U.S. and Canada—is the remarkable success of the new ISL (Improved Surface Linerboard) which has a kraft hardwood surface and 100% pine primary sheet. But this is not the only beneficiary of the expansion, as kraft paper and white printing papers also figure prominently.

Pres. David L. Luke Jr.'s recent announcement of a 5-year plan to invest $100,000,000 in plants and equipment took in the wide range of West Virginia grades.

An entirely new 300-ton pulp and white paper mill may be built at Tyrone, Pa., where a 145-ton mill now makes publication papers, or possibly another site.

The new Fourdrinier machine at Charleston, S.C., will increase production in both kraft paper and linerboard. At present, No. 1 machine is making linerboard and No. 2, paper.

Another new machine at the Luke, Md., mill will make quality printing paper.

ISL is the major spark firing the big Hinde & Dauch expansion. Several more plants are in the works, two new ones going up at Gastonia, N.C., and Kansas City, Kan. In Canada, this West Virginia subsidary has grown fast, now operating two board mills and 6 box plants. A new big box plant recently started up near Toronto. Three other subsidiary box plants were bought last year.

West Virginia probably will expand more slowly in Latin America, as it has started in a small way with the Rigesa, S.A., plant in Brazil. While long-term growth is expected, investments may not be large till government policies are worked out.

Ray Baker Named Weyerhaeuser Mfg. Mgr.

Raymond E. Baker has been promoted to the newly created position of manager of manufacturing, Pulp Div., Weyerhaeuser Timber Co., moving his headquarters to Tacoma, Wash., and he is succeeded as Pulp Div. mills manager in Longview by Edge N. Wennberg, former paperboard and paper mill superintendent.

Mr. Baker, born in Salem, Ind., was 42 years old last Feb. 27. He graduated from DePauw and obtained a master's and ph.d. at the Institute. He did development work at Brown Co., and was associated with Howard Morgan, vice president and pulp division manager of Weyerhaeuser, at Munising Paper Co. during war years. Mr. Baker was sulfite superintendent. From 1945-7, before going with Weyerhaeuser he was technical director Diamond Match Co.'s Pulp and Paper Division, and was in charge of design and start-up of its sulfite mill at Ogdensburg, N. Y., and training of personnel.

He was married to the former Jane Lesselyong of Ironwood, Mich., in 1940 and they have 4 children.

Mr. Wennberg came to Longview from Columbia River Paper Mills where he was supt. He was with Brown Co. before that, and attended Syracuse University.

RAYMOND E. BAKER, promoted to new position, Mgr. of Manufacturing, Pulp Div., Weyerhaeuser Timber Co.

Joseph C. Brown, superintendent of pulp mills, Springfield, Ore., moves to Longview to be assistant mill manager. Raymond Erickson, shift superintendent of the paper mill at Longview becomes paper mills superintendent.

Harold Houtz, formerly of Stauffer Chemical Co., Henderson, Nev., with a doctorate from the Institute of Paper Chemistry, is manager of the new chlorine plant built by Weyerhaeuser at Longview.

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With American Logging Tool Corporation now a wholly-owned subsidiary of Broderick & Bascom Rope Co., you are assured of prompt filling of your needs for timber handling equipment, logging tools and appliances. Distributors in every section of the country are waiting to serve you with the complete line of American Tools.

And these tools will retain the same high-quality for which they have gained fame. The products will be produced by the same skilled craftsmen, in the same manufacturing facilities. Broderick & Bascom research and engineering will be constantly striving to improve the present line of tools and to develop new ones.

Check your needs for peavies, cant hooks, load binders, grabs and other logging tools. Then call your nearby American Logging Tool distributor and see for yourself how promptly your orders are filled with quality tools. Write today!

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AMERICAN LOGGING TOOL CORPORATION

EVART, MICHIGAN

A SUBSIDIARY OF BRODERICK & BASCOM ROPE CO.

Top Men in Sulfite Paper Manufacturers

NEIL E. NASH (left), Wisconsin native and graduate of Geo. Washington U. and Wisconsin U., is new General Chairman of Sulfite Paper Manufacturers Assn., Inc. He is Vice Pres. and Secy. of Nekoosa Edwards Paper Co., and has been with Nepco 31 yrs.
JAMES G. CONLEY (middle), Gen. Sales Mgr. of the Fraser Companies, headquarters in New York, is the new Vice Chairman. He was Fraser's Western Sales Mgr. in Chicago, 1931-1945, when he was promoted to his present post.
EARL (MICKEY) McCOURT (right), veteran executive of Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., and another native Wisconsinite and U. of Wisconsin grad, is new Chairman of the Association's Group I—waxed papers, bleached bag and specialties. The word "sulfite" is no longer adequate in describing wide range of group's products.

Firm Chosen To Survey For Japanese Alaska Mill

A Seattle civil engineering firm, Hubbell & Waller, has been engaged by Alaska Lumber & Pulp Co., subsidiary of a Tokyo company planning a pulp mill at or near Juneau, to perform the first actual field work and site surveys headed up by Harold Cavin, consulting engineer of Bellingham, Wash. Mr. Cavin is also chief engineer of Puget Sound Pulp & Timber Co. and Ketchikan Pulp Co.

The first work will be at Sawmill Creek and the next site to be surveyed will be nearby Herring Cove. At press time there was no announcement of further current work on the Wrangell site, where the Japanese have acquired a small sawmill.

Big Packaging Show Set for Chicago

Some 30,000 business executives from all parts of the U. S. and other countries are expected at the American Management Association's 24th National Packaging Exposition, market place for the $10 billion a year packaging industry.

Set for Apr. 18 to 21, in Chicago's International Amphitheatre, approximately 140 thousand square feet of floor space will be required for some 375 exhibitors. Meetings will be in the Palmer House, with 1,500 participants.

Everett, Wash., Mill Will Coat Paper

• This month the Everett Pulp and Paper Co., a Simpson paper company, is installing the first off-machine or converting coater in a Pacific Coast paper mill at its Everett, Wash., plant. The high speed air-blade one-side roll coater will handle rolls up to 60 in. in width at a maximum 1000 fpm.

Designed by George R. Marsh, consulting engineer of Portland, Me., to specifications developed by Everett's engineering and technical departments, the custom-built coater and windup tension unit were fabricated by American Mfg. Co., Tacoma, Wash. Unwinder is by Woods Newspaper Machinery Corp., Plainfield, N. J., and winder by Dilts division of Black-Clawson Co. Electric drive is by Reliance Electric and Engineering Co. Drier equipment is by Eckstrom Sheet Metal Co., Everett.

The coating machine, a portion of Everett's current modernization, goes in a new reinforced concrete building especially designed for coating operations. Consisting of two floors and mezzanine, each floor contains 10,000 sq. ft. of floor space. The mezzanine will be utilized for coating formulation and mixing.

Don McCall is vice president and general manager at the Everett mill.

W. A. McKenzie, Everett's resident engineer, supervised design, construction and installation of buildings, machinery and equipment for coating. Howard S. Wright Co. was building contractor.

New Association Leaders Chosen

H. STUART DANIELS (left), Exec. Vice Pres., Union Bag & Paper Corp., was elected new President of the Kraft Paper Assn. during Paper Week. He succeeded W. C. Shorter of Camp Mfg.
WILFRED A. WYLDE (middle), Exec. Vice Pres. of Deerfield Glassine Co., Monroe Bridge, Mass., is new Chairman of the Glassine & Greaseproof Mfrs. Assn. He graduated from MIT in 1916, taught there for two years and after World War II entered the paper business.
ARTHUR G. WAKEMAN (right), elected President of Newsprint Service Bureau. He is Pres. of Coosa River Newsprint Co., and veteran of Kimberly-Clark's managerial team. Kimberly-Clark owns 39% of Coosa and 50.12% of Kapuskasing newsprint mill (with N. Y. *Times*).

Machine For Provincial Paper

A new 122 in. Walmsley (British) Fourdrinier machine is being built for Provincial Paper, Ltd., of Thorold, Ont., which is licensed to use the Consolidated Water Power & Paper process in machine-coating of book papers. It now has three Fourdriniers, 142, 138 and 92 in., with total production of book and writing of 110 tons daily.

G. I. Hoover is mill manager and S. J. Leishman, general supt. It is an Abitibi subsidiary.

Why Mobile Was Picked For I.P. Newsprint Mill

A 282-in. Beloit machine is due to be making the newsprint at a new 300-ton International Paper mill at Mobile, Ala., by August—in just 4 months! This will be first newsprint ever made in the South by I.P.

Last month PULP & PAPER named Mobile as a logical site, one of three possible sites. This magazine mentioned Mobile because of its central location for serving customers in the South, because chemical pulp and other facilities from the existing Mobile mill could be used. Thus, the mill is to be built for only $20,000,000. I.P. announced the Mobile kraft pulp mill and woodyard and wood plant would be expanded. Only a new groundwood mill would be required to serve the paper mill. It stressed skilled labor and supervisors available at its Mobile plant.

Alabama increased its tax exemption from 5 to 10 years for International, which proved a major consideration. I.P. has taken a 99-year lease on State Docks property for the new mill.

A New M. L. Madden Award

MICHAEL L. and JAMES L. MADDEN, father and son, former Chairman and President, respectively, of Hollingsworth & Whitney Co., in a recent picture taken in the South by PULP & PAPER. Their company is now a Scott Paper Co. Division and Jim Madden is a Scott Vice President and Director. Scott has established a $1,000 Michael Lester Madden scholarship at Colby College, Waterville, Me., to go to a sophomore planning a business career and judged as outstanding by faculty and students. An additional $1,000 from Scott will go to the college. Each award will be given annually for 5 years.

GEORGIA PEACH. Here's Warnock's 15-year-old 68.5 hp. INTERNATIONAL UD-14 diesel shown driving a Frick 00 mill with 50-inch saw, two-saw edger, dust chain and cut-off.

IH Saw Mill Power... "Tops for Durability"

Georgia mill owner buys 10-year-old INTERNATIONAL UD-14 engine, uses it 5 more years without any repairs.

AFTER 10 YEARS, JUST BROKEN IN. C. B. Warnock heard that the UD-14 he now owns had run 10 years with only one overhaul, then he purchased it. He says, *"My UD-14 has been running five straight years since I bought it, with no repairs. She's tops for durability and economy."*

C. B. Warnock of Wadley, Georgia, who runs his own sawmill and also does contract cutting for nearby companies, caused some comment five years ago when he purchased a 10-year-old INTERNATIONAL UD-14 diesel for his operations.

Warnock had heard the UD-14 had operated over the 10 years with only one overhaul and decided to buy it. His judgment was confirmed in the past five years of ownership for the UD-14 has cut 1½ to 2 million board feet a year with no repairs. After 15 years it still shows no signs of faltering.

You can get the same long-lived, low-cost engine performance for your mill needs by calling your nearest INTERNATIONAL Industrial Power Unit Distributor or Power Unit Dealer. He will be glad to help you select the right model and equipment for your requirements from six IH diesels ranging from 52 to 190 horsepower. They are all proven sawmill engines—tops for durability and economy.

Call today for your copy of the new power unit catalogue with complete performance specifications on IH diesels and 12 carbureted models or write to

INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS

INTERNATIONAL
INDUSTRIAL POWER
MAKES EVERY LOAD A PAYLOAD

SOFTWOOD STORAGE AREA IS SERVICED by this Link-Belt double wing traveling stacker which can handle 70 cords an hour on a 90 ft. pile. At left is Great Northern's new woodroom described in this story.

Mechanization is a "Must" in Maine

PULP & PAPER visits Great Northern operations. Also its new woodyards and woodroom with modern equipment.

• Movement of pulpwood to Great Northern Paper Co.'s three mills in Maine is along a vast network of waterways, roads and rail lines.

Approximately 500,000 cords annually are drawn from 7,000,000 acres in Maine's four northern counties, comprising one of the world's finest natural locations for large scale paper mill operations. Here are timber and water power resources in abundance and here Great Northern owns more than 2,250,000 acres; an area equal in size to Delaware and Rhode Island.

Virtually all their forests are within 100 air miles of the mills.

Selective cutting is based on merchantable timber and accessibility. Trees are cut as they are needed and the Northern's annual cut is always less than natural regrowth.

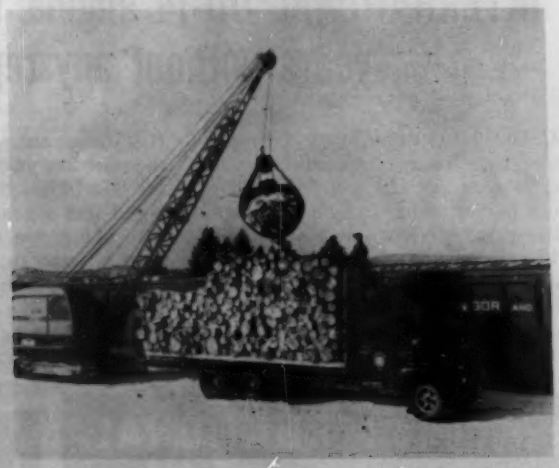
Of the annual cut, some 250,000 cords will go to the 10-machine Millinocket mill, 210,000 to the greatly expanded East Millinocket mill and 40,000 to the 2-machine specialty Madison mill.

Mechanization on a large scale is necessary to get the right amount of wood to the mills at the right time. To do this, 65 tractors, 10 cranes, hundreds of trucks, numerous conveyors and 9,000 pulpwood cars are needed.

Movement of pulpwood out of the forest is primarily a winter operation. Deep in the Maine woods, ice and hard-packed snow convert roughly bulldozed roads into excellent hauling surfaces.

It is a short season, January and February, when more than 500,000 cords must be moved. By early March it all must be piled along the river banks, highways, on the frozen lakes

LINK-BELT SPEEDER CRANE RECLAIMS LOGS from Great Northern's softwood storage for transfer to portable conveyor feeding belts to grinders.



BUCYRUS-ERIE CRANE, at a Great Northern railhead, is loading specially-designed pulpwood cars with swinging sides.

THEY HAVEN'T LOST A TRUCK YET, says Great Northern about their truck dumping device. Two of these stations provide wood for East Millinocket mill.

or delivered to railheads.

Light tractors assemble sled loads which are made up into long trains for hauling by heavier tractors to the frozen lakes and rivers. Along the forest roads, cranes load trucks from roadside pulpwood piles. Other cranes are at work loading pulpwood cars at rail yards. The Northern owns five cranes and leases others as they are needed from local contractors. The latter are glad for this work when their equipment would otherwise be idle in the winter months. During the summer the Northern's cranes are used on their road construction.

The pulpwood drive is the culmination of a year's work in the woods. Throughout the summer and far into the winter, the pulpwood cutter's chain saw is steadily at work. At some stage, a major portion of pulpwood is waterborne on its way to the mills.

CHAIN SAW RAISES LIVING STANDARDS—Today's lumbermen are different than those of only a few years back. Today's cutters have more of a "commuter" status. In their own cars, they come to camps, spend eight or ten days and then when they have had enough, take off.

When a PULP & PAPER editor remarked at the late model cars parked in front of one of the Northern's camps, he was told that the chain saw has made a big difference in the standard of living for the woodsmen.

Woods camps, too, are far different than those which old-timers in the industry remember. Great Northern uses modern portable camps, insulated, well-ventilated, light and clean.

Portable power plants furnish electricity and there is hot and cold running water in many. Food is kept under refrigeration.

In the time of the spring thaws, the freshets swell the waterways and the "watered" wood is on its way to the mills. The drive starts in early April, but it isn't until September that the last straggling sticks are rounded up.

The Northern has two drives in Aroostook county along a series of 90 miles of waterways, extending from the Canadian border. Thirty thousand cords are driven along the Red River to a railhead at St. Croix Lake. Here conveyors haul wood from the river and load in pulpwood cars. This operation can handle about 14 cars a day.

The second drive along the Machias and Aroostook Rivers is 60 miles long and 40,000 cords to 60,000 cords are handled here. This drive ends at Sheridan, below Ashland, some 20 miles from Presque Isle. Here, 35 cars a day can be loaded.

NEW TYPE OF PULPWOOD CAR—Of particular interest in the Northern's operations are their 200 pulpwood cars with swinging sides. These were designed by Great Northern engineers in cooperation with Bangor & Aroostook railroad.

There are two car dumps; one at North Twin dam, five miles above Millinocket, and the second at Millinocket. Here hydraulic tilting devices can unload one of these cars in five minutes. It takes a man four hours to

HARDWOOD LOGS RIDE this Link-Belt inclined conveyor to top of digester house where PULP & PAPER took this picture. At left are trucks with hardwood and to right is hardwood storage area serviced by single wing Jeffrey traveling stacker.

GREAT NORTHERN HAS TWO CAR DUMPS where hydraulic devices tilt these specially-designed pulpwood cars. A car can be unloaded in 5 minutes in contrast to about 4 hours by hand.

Built to rigid production cutting standards, the Homelite model 17 has everything a professional woodcutter wants . . . light weight, high power, fast cutting, lowest stumpage while felling, less binding and bending while bucking, and above all, more dependability and lower maintenance costs. Comes with 14″ to 38″ straight blades and 14″ or 18″ plunge cut bows. And prices start as low as $259.00 complete. Write for illustrated bulletin. Now!

PERFORMANCE · DEPENDABILITY · SERVICE

HOMELITE CORPORATION

7704 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa

DEEP IN GREAT NORTHERN WOODS this Schield Bantam crane with clam-shell grapple loads truck with pulpwood logs piled along forest road.

LARGE SCALE MECHANIZATION IS NECESSARY to get right amount of wood to Great Northern mills at right time. Here, a tractor hauls long train of pulpwood on sleds.

do this by hand.

There are also two special truck dumping stations; one at Little Italy in Millinocket and the other at Dolby, two miles above East Millinocket.

Both stations put wood into the Millinocket stream for the East Millinocket mill.

Great Northern owns over 300 miles of company roads. Almost all are gravel. About two-thirds of their private road system is open to the public. The remainder is closed, usually because of heavy operations.

EAST MILLINOCKET WOODYARD HANDLING—At East Millinocket mill, softwood and hardwood are handled separately and kept in different storage areas. All hardwood is trucked in.

The 138 by 85 ft. woodroom houses a 12 by 45 ft. Great Northern Paper Co. design barking drum, riveted, in four sections and a Canadian Ingersoll-Rand welded two-section 10 ft. dia. by 44 ft. drum. The former drum handles softwood; the latter soft or hardwood. A third drum by Canadian Ingersoll-Rand will also handle either softwood or hardwood. Capacity of this woodroom on river-driven wood is 50 to 75 cords an hour.

River wood is hauled up by an 8-strand chain conveyor and onto a 54 in. Goodyear belt which feeds the barking drums.

Barked logs travel a Bancroft & Martin Rolling Mills 36 in. flat belt conveyor. Softwood logs go to grinders or are fed to a double-wing Link-Belt traveling stacker, with capacity of 70 cords an hour on a 90 ft. pile.

Hardwood logs are fed to a single wing Jeffrey traveling stacker, rated at 50 cords an hour for 60 ft. piling.

A buried fire protection system includes Johns-Manville Transite piping and monitor nozzle towers.

A Link-Belt Speeder (Great Northern has four Link-Belt Speeders), with grapple, reclaims logs from the softwood area onto a portable chain conveyor feeding the belts.

A Link-Belt inclined conveyor, 416 ft. long, moves hardwood logs to the top of the digester house.

The softwood storage area can store about 70,000 cords in two piles. Hardwood storage capacity will be determined by extent of deliveries.

In South, Big Savings Made by Long Loads

● In many pulpwood areas of America, loggers are considering advantages of long-log handling.

Noted among forest managers for its tree harvesting program, W. T. Smith Lumber Co., Chapman, Ala., uses modern equipment in a flexible operation based upon fast crane loading with a duplex log trailer system. This company is an important supplier of pulpwood and chips in the South.

Applied in south Alabama's hills for logging the sawmill, its logging method is adaptable to Lake States and Northeastern pulpwood areas by those interested in economies of trucking long logs of multiple wood lengths.

Trucking of pulpwood in multiple unit lengths by a Southern mill (see PULP & PAPER, May 1952) yielded 2¾ cords per man-day compared with a generally thought of figure of 1 cord per man-day.

Conversion in 1935 from railroad logging to trucks and tractors was effected without raising costs. As better equipment became available, production per man hour increased so that logging costs per thousand feet were held down though wage rates rose and the purchasing power of the dollar decreased.

Progress was achieved two years ago when W. T. Smith company acquired a Link Belt Speeder HC-51 truck crane with a 24-foot boom rein-

Speaks Softly—But Carries a Big Stick

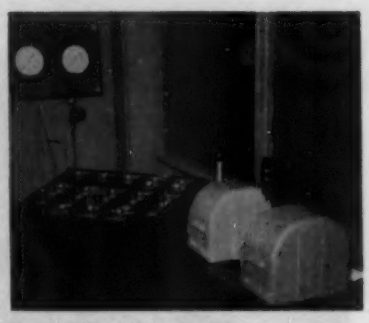
This Link-Belt Speeder HC-51 on the W. T. Smith 205,000-acre tree plantation in Alabama has helped to reduce haulage costs nearly half, by loading 50 ft. and 32 ft. logs.

forced for heeling. This loads tandem trailers which are pulled through the woods by three Army surplus 6x6 trucks. Extra trailers are provided so there's never a slow down in the loading. Bunching is effected with four Caterpillar D-6 tractors. As each trailer is loaded and pulled away an empty is ready to take its place. The loaded trailers are set-out alongside a suitable public road or highway. It requires but a few minutes to detach the 6x6 unit; the same brief pause for one of the 16 Ford, Chevrolet or GMC highway trucks to pick them up. Trucks are assigned to the Link-Belt crew according to distance to the mill.

Instead of the old-time 16-ft. log the company brings in units that may range from 32 up to 60 ft. The policy is to bring in as long a log as possible —up to tree length—so that closer control of raw material may be exercised at the mill. Crook in a tree that would prevent snug truck loading results in at least one cut in the woods. Utilization of the loading crane makes it possible to bring in the long lengths which may run in weight from 6,000# up to 9,000# each. Trailer loads trucked to the mill run up to 4M feet log measure, but average 2100 feet. Average production runs 50M feet per 8-hour day. A record day yielded 102M feet to the sawmill.

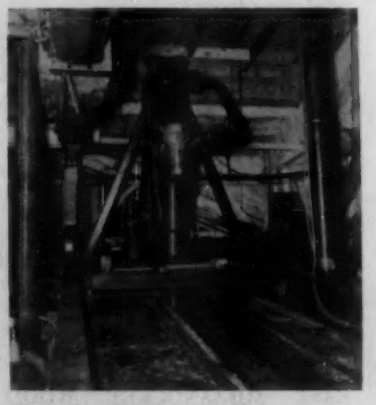
Self-propelled, the Link Belt follows the "dozed" woods trails from one loading spot to another without difficulty. In moving from one location to another it has a 30 mile highway speed enabling it to keep up with the caravan of trucks and trailers.

Pine logs are put through a debarker at the W. T. Smith Lumber Co. mill with subsequent chipping of slabs and trimmings for shipment to St. Regis Paper Co. mill at Cantonment, Fla. The lumber company also sells approximately 20,000 cords of pulpwood through thinnings and conversion to tree tops.



In the Operator's Cage

Here are levers and push-buttons for new Weyerhaeuser barker at Everett sulfite mill. When this unique type of electrical control was initiated for this industry, Reliance Engineering did the pioneering and Roscoe Smith of Reliance wrote article on it for PULP & PAPER.



New Carriage—No Hose

One of the latest innovations in hydraulic barking is this Sumner Iron Works-developed traveling nozzle carriage at Weyerhaeuser's Everett sulfite mill. It moves back and forth directly over barker chamber.

All hose connections have been eliminated by use of movable metal swivel joint connections.

Newest Big Barker Replaces Historic One

● One of the first two hydraulic big log barkers installed in this industry, the one at the sulfite pulp mill of Weyerhaeuser Timber Co., Everett, Wash., was shut down for the last time recently. In just three weeks it was completely dismantled and a new Sumner Iron Works "Bellingham-type" hydraulic barker (cradle-type and faster-operating) was installed in its place and started up.

The old barker worked overtime for several weeks before the changeover, barking about 5¾ million feet of logs which were stored in the log pond to carry the mill through the 3-week shutdown. Russell J. LeRoux, mill manager, praised the work of Plant Engineer Lee Hill, Project Engineer Larry Ziebell, mill crews and others for the smooth, fast changeover. Not one minute of production was lost while this major department was down.

Sumner Iron Works, manufacturers of "Bellingham" barkers, said that the new machine was largest of its type ever installed. Chief Engineer Marion Fish of Sumner supervised production and design.

Sumner Barker—Before and After Action

At left, before action, nozzle of Sumner barker in position at top; logs are cradled in these wheels while being barked. Logs average 18 in.; biggest are about 6 ft. diameter. At right, bark and water flying obscure picture taken through heavy glass of operator's cage. Log length is 32 ft. Water pounds through 50 jets, with 18 in. holes, at 1400 psi.

The pioneer Weyerhaeuser barker was replaced completely, right down to the foundation. Its installation was a historic event in this industry, creating a savings of 18 to 20% in wood yield by eliminating loss in slabs and saw kerf incurred in breaking big logs down for mechanical barking. It was first described in the May 1943 issue of PULP & PAPER. Early experiments at the Weyerhaeuser Longview plant led to building a machine which barked whole logs up to 26 ft. long in seconds, with a chain turning the log while two nozzle streams below the log sliced off bark with unprecedented water pressures of 1400 fpm. It made 75 workmen available for other vital war jobs. It served the then biggest chipper in the world—171 in.—its Sumner-built disc was laminated from steel plate salvaged from the Narrows Bridge which collapsed in Puget Sound in 1941. Wartime restrictions

Handling Pulpwood and Lumber With Diesel Efficiency

WRITES OFF COST IN A FEW SHORT YEARS!!

Industry's most-efficient crane, an American DiesElectric Locomotive Crane, can write off its full cost in a few years, according to operating records. Equipped with a grapple, above, a 40-ton American DiesElectric speedily unloads a railroad car and stockpiles pulpwood. The elevated cab set to the side of a boom lets the operator see deep into the car and gives him full vision for high piling of bulky loads. Fast, smooth swings made possible by American's tandem-band swing clutches mean more cycles per hour.

A controlled-tension dual tagline enables the operator to position the grapple swiftly and gives him full control for neat, accurate stockpiling. With electric power to the trucks and direct-diesel power to the deck, American Cranes provide smooth, flexible operation at low cost. Fuel costs of slightly over a dollar a day are reported from many jobs. Get the full facts on how American DiesElectric Locomotive Cranes can put diesel efficiency to work for you. Write American Hoist & Derrick Co., St. Paul 1, Minnesota.

660-5-27

Another great tractor by Oliver ...THE POWERFUL OC-12 CRAWLER!

It's a rugged, eager worker in the 45 drawbar h.p. class that features advancements in power, economy and operating ease to make every job more profitable.

The OC-12 offers two engines of exceptional torque span—diesel or gasoline. Both engines have instant electric starting, pressure cooling, by-pass thermostat and full-flow oil system to insure quick starting and long, low-cost service.

The smooth lines of this unit show it is made for easy access and operator visibility. Controls are right where they're the handiest. Down to the key-lock switch, foam rubber seat, overhead-linkage clutch, this tractor caters to operator convenience.

Your Oliver Industrial Distributor will be glad to demonstrate the OC-12. Give him a call.

The OC-12 is available in two track widths: 44- and 60-inch—and two track lengths, one with four lower track wheels and one with five. Standard grousers are 14-inch.

Oliver OC-12 with hydraulic 1-yd. loader. This model has the long track frame for added stability. Loader has exceptional bucket rotation and 10′ 4″ loading height.

THE OLIVER CORPORATION
400 W. Madison Street, Chicago 6, Illinois

OLIVER

a complete line of industrial wheel and crawler tractors

prevented use of 10 in. disc forging.

Roscoe H. Smith, then manager of applied engineering for Reliance Electric & Engineering Co., and now secretary of the company, wrote an article for PULP & PAPER explaining the intricacies of the new push-button control program for the barking operation.

R. B. Wolf, at that time manager of the Weyerhaeuser pulp division (he died Nov. 11, just 18 days before the machine was finally shut down) and Mr. LeRoux, then the new manager at Everett, predicted the far reaching effect on the Far West industry and forest conservation which the machine has had. About the same time, Crown Zellerbach was installing the first "lathe-type" whole log barker at its Port Townsend, Wash., mill.

New Harvester Catalog on Power Units

Eighteen heavy-duty power units, biggest selection in the industry, are described in a new catalog published by the International Harvester Co. They have a wide range of 16.5 to 200 net hp., and fall into three groups: 4- and 6-cylinder carbureted units, and diesel units, both 4 and 6 cylinder.

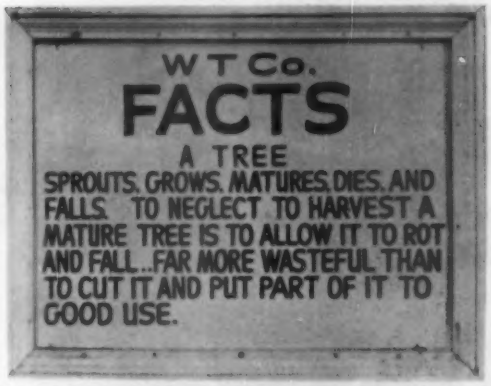
The catalog lists 6 heavy-duty diesel power units, from 55 to 190 hp. There is a choice of seven 6-cylinder heavy-duty carbureted units, from the model U-220 with 62 hp. up to the big model U-1091 with 200 hp. The five 4-cylinder carbureted engines range from 16.5 to 55 horsepower.

A New Machine for Pulp Supply

This new high pressure briquetting machine, the Glomera Brigettor, requires no binder. Invented in Switzerland, and built by Sumner Iron Works, Wash., it is proposed for accumulating wood waste materials for pulp mills in convenient form for transportation and storage. It is already planned for such operations on the Pacific Coast. It does not destroy lengths of wood fibers compressed. It is expected to open up new sources for pulp mills and particle board manufacturers.

Facts About Trees— Weyerhaeuser

Here's a sign that meets the eye of many visitors to Weyerhaeuser's Springfield, Ore., pulp and lumber and wood use operations. Taken by a PULP & PAPER editor on recent visit.



A "HOW TO DO IT" Feature

THIS CUTTER KNIFE has a ½ hp motor to chop up trim or shavings before paperboard sheet enters cutter section. This prevents waste trim from falling into sheets during cutting operations and also keeps working area neater. Idea is used at Robert Gair Co's. Piermont, N.Y. plant.

HOW TO prevent waste trim falling into sheets at the cutters is told in a recent issue of Gair News, house magazine for Robert Gair Co., Inc. Paperboard machines in their Piermont, N.Y. plant are equipped with board machine trim choppers, which cut up the trim or shavings before the sheet enters the cutters. Trim is fed from both sides of machine into adjustable tension draw rolls and a cutter knife equipped with a ½ hp motor.

Chopped trim is deposited directly into a broke box, making a cleaner and neater area at cutter section of machine.

Durant Heads New Continuous Cooking Firm

Leonard G. Durant, who has been active in the field of continuous cooking of woodpulp since 1945, is head of a new company, The Condi Engineering Corp., of Pittsfield, Mass., which is being financed by E. D. Jones & Sons Co. of that city, and Alexander Fleck Co., Ltd. of Ottawa, Canada.

The name—Condi—is a contraction of the words "continuous digester." The company plans a new digester for production of chemical pulps continuously.

Mr. Durant, who was born in Danbury, Conn., is a graduate of Columbia University, class of 1927. His first position in the paper industry was with Union Bag & Paper Corp. at Hudson Falls, N.Y. He held positions in technical work and research with E. B. Eddy Co., and later, J. R. Booth Co., in Canada. From 1945 until he recently resigned, he was with Pandia.

James Irvine, former development engineer with Abitibi Power & Paper Co., Ltd., and A. Surino, formerly with International Paper and recently with Pandia, have joined the staff of Condi Engineering.

LEONARD G. DURANT—head of new Condi Engineering Corp., Pittsfield, Mass. The firm plans a new continuous digester.

More Facts About Hawaii Pulp Plans

The revival of negotiations that may lead to a bagasse pulping enterprise in Hawaii, with the firm of Castle & Cooke of Honolulu now associated with Hawaiian Sugar Planters' Association, has aroused interest. The building of more tissue and other paper mills on the Pacific Coast has been a stimulus. But the pulp could be shipped even to Atlantic Coast mills for only $4.25 more per ton.

While this is still very much in the discussion and research stage, it is interesting to observe that a potential plant size of 2,000 tons per day is calculated as possible. Question at stake: Would planters join in one big mill, or build separate ones?

Supts. Convention May Have a "Baseball Night"

Norman O. Weil, vice president and veteran paper industry sales chief for W. S. Tyler Co., hopes to stage the biggest baseball party ever put on in the paper industry, when the Superintendents Association holds its convention June 14-16 in Cincinnati.

"The Brooklyn Dodgers will be in town, playing the Cincinnati Reds," said Norm, who probably has seen more big league ball games and knows more big league ballplayers and managers than anyone else in the paper industry. "I hope we can have a great big baseball night for the whole convention."

Weyerhaeuser Considering Several Mill Sites

Weyerhaeuser Timber Co. has long had several possible sites under consideration for its next pulp mill in the Grays Harbor-Willapa Bay areas of Southwestern Washington and the option it has taken on 850 acres at Cosmopolis, Wash., is one of these possibilities.

The property belongs to the Ultican sawmilling interests, who made the announcement. Weyerhaeuser's full wood utilization program and economy has long indicated this as the next area for a pulp mill. Extensive stands of hemlock are involved, so it could be either a sulfite or kraft. Cosmopolis is just east of Aberdeen, at the head of Grays Harbor.

Osborne Boys Have Paper Industry Forebears

If nearly two years old Richard and five months old Michael Hugh, sons of Hugh and Carol Osborne, Portland, Ore., don't get into the paper industry some way, it won't be because they lacked examples in their family. Their grandfathers are Richard Osborne, chief engineer of Franconia Paper Co., Lincoln, N.H., and Elmer Simpson, of Crown Zellerbach's insurance department, San Francisco, and, of course, their father, formerly a Newton Paper Mills employe, is Lockport Felt Co. representative for the Pacific Coast.

Ronald Melvin To Wed

Ronald Melvin, unbleached sulfite pulp sales representative for Powell River Co., is being married on April 30, to Miss Gwen Ellis, a native daughter of Chicago and graduate of Northwestern U., whose father is in investment business. Mr. Melvin moved to Chicago a year and a half ago from Vancouver, B.C., after having a wide experience in many Powell River departments. He now is working out of offices at 111 West Washington St., Chicago.

A full 1 yd. from the ground up

MODEL 41

Here is a 1 yd. machine that will meet many of the needs of the small and medium sized mill.

The Northwest Model 41 is a *full* 1 yd. rig *built as a 1 yd. machine from the ground up* and capable of the service and output you expect of a 1 yd. machine. It gives you a wide choice of boom hoist equipment which permits any combination up to three load lines with a live boom. Uniform Pressure Swing Clutches take the jerks and grabs out of swinging, speed up handling pulp loads and make spotting safer. Crawlers steer with positive traction on both crawlers while turning as well as when going straight ahead giving positive traction at all times. And of course it's convertible to standard Shovel, Dragline or Pull-shovel. Many other Northwest advantages make it an ideal answer to mill problems. Ask for more details.

NORTHWEST ENGINEERING COMPANY
1516 Field Building, 135 South La Salle Street
Chicago 3, Illinois

10 to 50 TONS

NORTHWEST

The Crane That Goes Anywhere

A "HOW TO DO IT" Feature

THIS CUTTER KNIFE has a ⅓ hp motor to chop up trim or shavings before paperboard sheet enters cutter section. This prevents waste trim from falling into sheets during cutting operations and also keeps working area neater. Idea is used at Robert Gair Co's. Piermont, N.Y. plant.

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The name—Condi—is a contraction of the words "continuous digester." The company plans a new digester for production of chemical pulps continuously.

Mr. Durant, who was born in Danbury, Conn., is a graduate of Columbia University, class of 1927. His first position in the paper industry was with Union Bag & Paper Corp. at Hudson Falls, N.Y. He held positions in technical work and research with E. B. Eddy Co., and later, J. R. Booth Co., in Canada. From 1945 until he recently resigned, he was with Pandia.

James Irvine, former development engineer with Abitibi Power & Paper Co., Ltd., and A. Surino, formerly with International Paper and recently with Pandia, have joined the staff of Condi Engineering.

LEONARD G. DURANT—head of new Condi Engineering Corp., Pittsfield, Mass. The firm plans a new continuous digester.

More Facts About Hawaii Pulp Plans

The revival of negotiations that may lead to a bagasse pulping enterprise in Hawaii, with the firm of Castle & Cooke of Honolulu now associated with Hawaiian Sugar Planters' Association, has aroused interest. The building of more tissue and other paper mills on the Pacific Coast has been a stimulus. But the pulp could be shipped even to Atlantic Coast mills for only $4.25 more per ton.

While this is still very much in the discussion and research stage, it is interesting to observe that a potential plant size of 2,000 tons per day is calculated as possible. Question at stake: Would planters join in one big mill, or build separate ones?

Supts. Convention May Have a "Baseball Night"

Norman O. Weil, vice president and veteran paper industry sales chief for W. S. Tyler Co., hopes to stage the biggest baseball party ever put on in the paper industry, when the Superintendents Association holds its convention June 14-16 in Cincinnati.

"The Brooklyn Dodgers will be in town, playing the Cincinnati Reds," said Norm, who probably has seen more big league ball games and knows more big league ballplayers and managers than anyone else in the paper industry. "I hope we can have a great big baseball night for the whole convention."

Weyerhaeuser Considering Several Mill Sites

Weyerhaeuser Timber Co. has long had several possible sites under consideration for its next pulp mill in the Grays Harbor-Willapa Bay areas of Southwestern Washington and the option it has taken on 850 acres at Cosmopolis, Wash., is one of these possibilities.

The property belongs to the Ultican sawmilling interests, who made the announcement. Weyerhaeuser's full wood utilization program and economy has long indicated this as the next area for a pulp mill. Extensive stands of hemlock are involved, so it could be either a sulfite or kraft. Cosmopolis is just east of Aberdeen, at the head of Grays Harbor.

Osborne Boys Have Paper Industry Forebears

If nearly two years old Richard and five months old Michael Hugh, sons of Hugh and Carol Osborne, Portland, Ore., don't get into the paper industry some way, it won't be because they lacked examples in their family. Their grandfathers are Richard Osborne, chief engineer of Franconia Paper Co., Lincoln, N.H., and Elmer Simpson, of Crown Zellerbach's insurance department, San Francisco, and, of course, their father, formerly a Newton Paper Mills employe, is Lockport Felt Co. representative for the Pacific Coast.

Ronald Melvin To Wed

Ronald Melvin, unbleached sulfite pulp sales representative for Powell River Co., is being married on April 30, to Miss Gwen Ellis, a native daughter of Chicago and graduate of Northwestern U., whose father is in investment business. Mr. Melvin moved to Chicago a year and a half ago from Vancouver, B.C., after having a wide experience in many Powell River departments. He now is working out of offices at 111 West Washington St., Chicago.

A full 1 yd. from the ground up

MODEL 41

Here is a 1 yd. machine that will meet many of the needs of the small and medium sized mill.

The Northwest Model 41 is a *full* 1 yd. rig *built as a 1 yd. machine from the ground up* and capable of the service and output you expect of a 1 yd. machine. It gives you a wide choice of boom hoist equipment which permits any combination up to three load lines with a live boom. Uniform Pressure Swing Clutches take the jerks and grabs out of swinging, speed up handling pulp loads and make spotting safer. Crawlers steer with positive traction on both crawlers while turning as well as when going straight ahead giving positive traction at all times. And of course it's convertible to standard Shovel, Dragline or Pull-shovel. Many other Northwest advantages make it an ideal answer to mill problems. Ask for more details.

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10 to 50 TONS

NORTHWEST

The Crane That Goes Anywhere

Happy Group of Winners

Shelton Division, Rayonier, Inc., at Shelton, Wash., won Wash. State Governor's Safety Trophy for lowest yearly frequency rate (2.20) among pulp and paper mills in Washington for 1954. The winners (l to r) V. T. MORGAN, Finishing Room Supt.; WINSTON SCOTT, Div. Asst. Mgr. (Mgr. George Cropper was not present); RALPH PAULSON, Safety Supervisor; JOHN GAVARESKI, Personnel Mgr.; LLOYD ROBERTSON, AFL Labor Delegate for mill; LOBERT BELL, Pulp Mill Supt.; ROBERT MILLER and RALPH McMAHON, Labor Delegates.

Gift for Leo Ziel from Camas (at left); Braun and Brown Beam! (right)

LEO ZIEL, (left) Res. Mgr., Crown Z kraft mill, Port Townsend, Wash., receives a special green polka dot tie from "Safe Workers" of CZ Camas mill at Seattle meeting. Camas had best 5-year safety record of pulp and paper mill operations in the state with rate of 4.61 for nearly 27 million man hours. But Townsend was right on Camas's heels with 5.08 for 7,676,000 man-hrs.

CARL E. BRAUN (left in pic at right), Vice Pres. and Res. Mgr., Publishers' Paper Co., receives Award for leading 11 Oregon state mills in safety with best five-year safety record—a 5.21 average. AL E. BROWN (right), Vice Pres. and Regional Director of AFL Papermakers Union, makes the award.

What Happened At Coast Safety Meetings

In last month's PULP & PAPER, 12 Pacific Coast mills and divisions with the best safety records for 1954, and the 10 best for the five years—1950-4, were listed.

The Oregon and Washington state meetings of the Pacific Coast Labor-Management Safety Association have now been held, following the California one, reported in March (page 116). The other two meetings followed a similar pattern.

Highlight at Seattle, attended by 260, was a speech by G. J. Ticoulat, CZ vice president, who said "we think accident prevention is good management, good unionism, good business, good citizenship and good common sense." At Oregon City, Robert E. Bundy, executive v.p., Fibreboard, spoke similarly to about 150, cautioning against complacency.

Nicholas Checherin, personnel mgr., Weyerhaeuser, Springfield, chairmanned the Oregon meeting and Ralph A Lawrence, personnel supervisor, Fibreboard, Port Angeles, chairmanned at Seattle, and each had union and management co-chairmen serving, too, AFL national executives were chief union speakers, J. N. Markham, of Philadelphia, in Oregon, and Fred Rochfort, Springfield, Mass., in Washington, who said "safety is just as important as good wages" and urged cooperation.

Alton Firms Merged

Consolidation of folding carton Alton Box Board subsidiaries under the name Alton Boxmakers, Inc. is announced by Marvin W. Swaim, Alton Box Board's first vice president and general manager. Alton Boxmakers combines operations of Shultz Folding Box Co., Pacific, Mo., and the folding carton division of Acme Folding Box Co., St. Louis, thus offering customers of each a more complete folding carton service.

Officers of the new firm are: Nathan Rosenthal, chairman, Joseph S. Shultz, Jr., president, and James I. Miller, executive v.p. and general manager. Sales offices, 812 Olive St., St. Louis.

Link-Belt's 80th Annual Features Pulp and Paper Views

"The outlook for the coming year is encouraging," says Robert C. Becherer, president, in Link-Belt Co.'s annual report. It shows 1954 sales of over $111,000,000, and several illustrations are from pulp and paper operations, indicating the importance of that market.

The big log merry-go-round turntable which Link-Belt built at the new Bowater's Southern Paper Corp. mill, the underwater storage pond there, and the Link-Belt PIV variable speed drives for accurate speed control on the new paper machine differential drives are shown. Link-Belt's new factory branch at Portland, Ore., and a new model Link-Belt Speeder crane are also shown.

St. Regis Moves Polyethylene Equipment South

As part of its multiwall bag production program at Pensacola, Fla., the polyethylene coating equipment from the St. Regis mill at Carthage, N.Y., will be moved to the Florida mill about mid-year.

Willard E. Hahn, resident gen. mgr. at Pensacola, said it would require an additional 50 or more employes. The equipment is used to coat bleached and unbleached kraft paper. For bags, it provides moisture, grease and air penetration resistance.

During 1954, St. Regis expanded bleached and unbleached crepe paper production at Carthage. It installed equipment for making paper towels in area formerly used for multiwall bag production. Northern mills will concentrate on more kraft specialties.

P. F. "POP" NEUMANN promoted by Hercules to head Rosin Size Sales force. He joined Hercules in '37 from Michigan State, where he was Chem. Instructor.

Neumann Heads Hercules Size Sales

New assignments in Paper Makers Chemical Dept., Hercules Powder Co.:

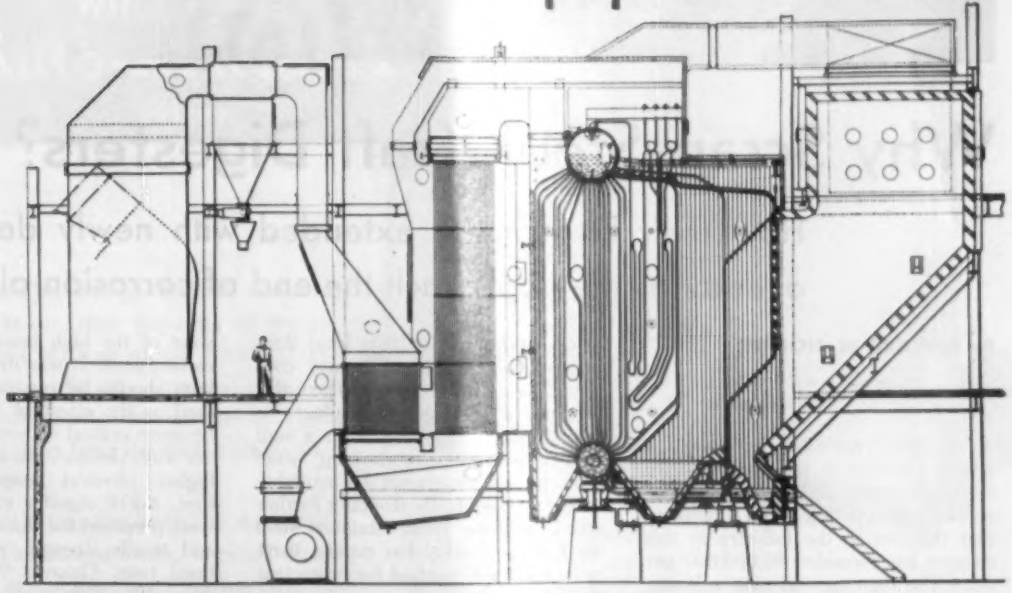
P. F. NEUMANN, for 9 years, manager of Tech. service, is new manager of rosin size sales; **THOMAS S. MORSE**, is manager, sales service, paper chemicals: **JAMES K. FARRELL**, is manager, product improvement, paper chemicals, and **ROBERT R. BUSS**, is acting manager of the Wilmington branch sales office.

2

B&W MgO RECOVERY UNITS

KETCHIKAN

to serve pulp mill in ALASKA



Ketchikan Pulp Company—the first pulp mill in Alaska—will produce dissolving pulp employing the Magnesium Bisulphite (MgO) process. This will be the first new plant to use this process.

B&W is the exclusive licensing agent for the MgO process. Each of the two B&W heat and chemical recovery units for this plant is designed to generate 93,000 lb of steam per hour . . . will consist of a two-drum bent-tube boiler with superheater designed to operate at 860 psi and 825 F total temperature, and equipped with Y-jet liquor atomizers set in a refractory furnace.

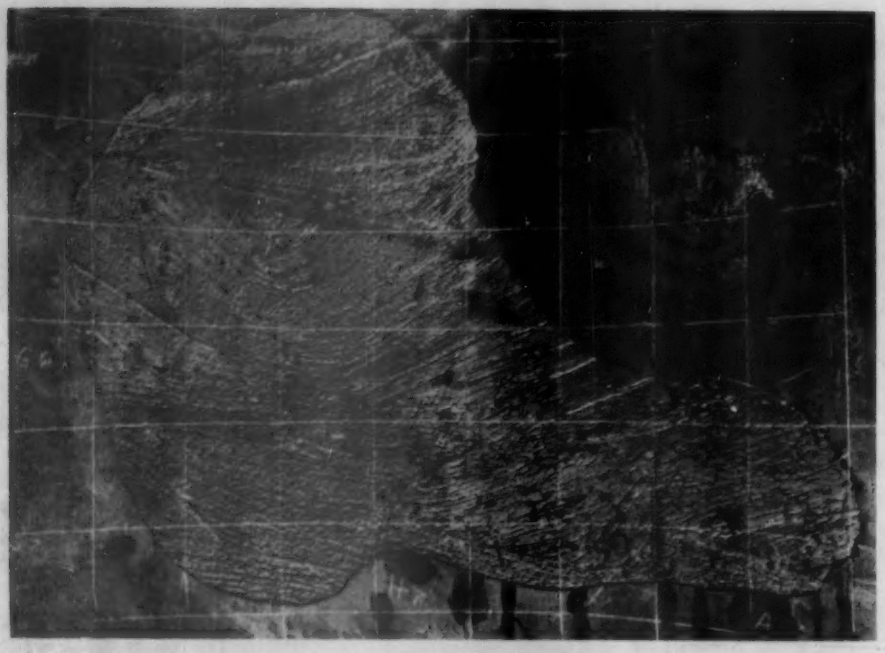
In addition to the recovery units, two B&W two-drum Stirling boilers are on order, to be fired with oil and bark. Each power boiler will generate 160,000 lb of steam per hour at 860 psi and 825 F total steam temperature.

B&W invites your inquiries relating to heat and chemical recovery problems for both the sulphite and sulphate pulping processes. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

BABCOCK & WILCOX

BOILER DIVISION

P-779



REVEALS OVERLAY SUCCESS—Recent inspection of this large Crucible stainless steel weld overlay, applied in 1952, revealed little or no evidence of attack on the stainless steel and no signs of accelerated attack on the adjacent carbon steel. All of the overlays applied, some as long as 45 months ago, have been equally successful.

The markings shown here are 12-in. squares. Crucible engineers have applied overlay areas up to 250 sq. ft.

Why Scrap Steel Kraft Digesters?

How their life can be extended with newly developed overlay as they approach the end of corrosion allowance

By EDWARD W. HOPPER

(Especially written for PULP & PAPER magazine

● Digester corrosion has been a serious problem in the kraft industry in recent years, both in this country and abroad. It has been estimated that the cost to the industry in this country has exceeded $2,000,000 per year. The digester corrosion subcommittee in TAPPI has made a careful and thorough study of the problem over the past five years, working closely with the Canadian task force set up for the same purpose. These studies have shown that the problem is complex, and that the failures result from a number of factors. This work has developed some of the basic causes for the failures and should result in reducing the mortality rate on carbon steel digesters.

It is very likely, however, that due to conditions in some mills which may not easily be corrected, or to unforseeable effects of changes in design or operating practice, that local thinning of digesters in mills may continue through the years. When this localized attack does take place, or where previous experience in a mill indicates that it may develop, some protective means should be available to extend the life by stopping further attack at those areas. Stainless steel weld metal overlay has proven itself to be a suitable method for protecting these locations.

Several mills were faced with the problem of keeping some of their critically attacked carbon steel digesters in service until replacements could be secured for installation. The problem was put up to Crucible Steel to suggest a satisfactory method. The suggestion was made to cover the thinned areas with a protective stainless steel weld metal overlay. In view of the fact that the digesters are pressure vessels and are subject to the ASME Unfired Pressure Vessel Code in those territories where the code is acceptable, Crucible first ran a series of tests to determine the effect of the overlay on the physical properties of the steel as compared with the code requirements.

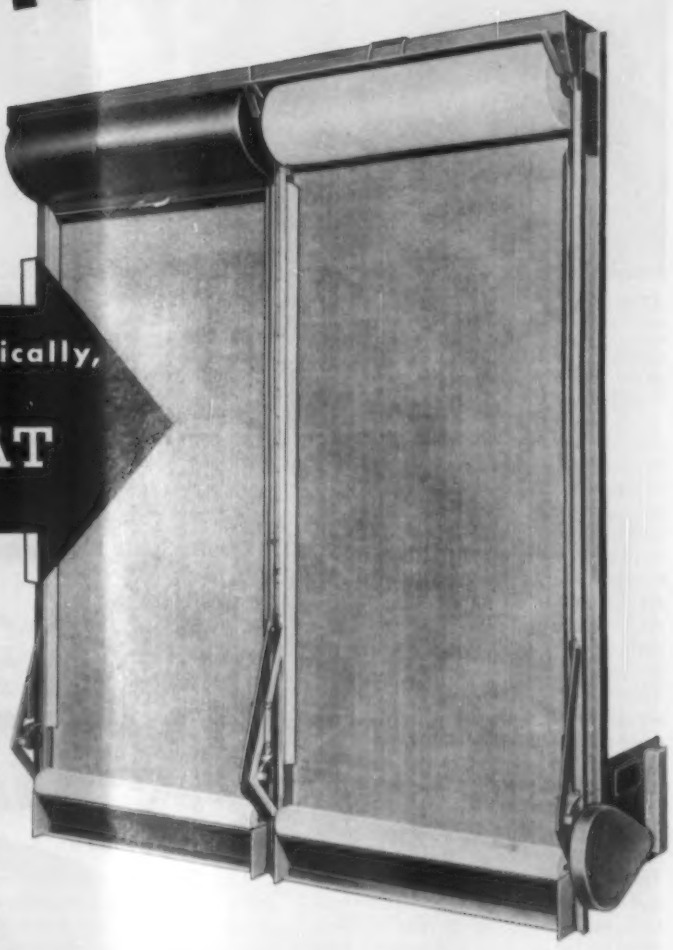
Some of the digesters in question were of the high tensile A-212 type carbon steel. It was decided that the tests should be run on this type of steel as the effect of welding might be more critical on vessels with thinner walls designed on the basis of the higher physical properties. Therefore, A-212 digester steel test plates were prepared for the necessary yield and tensile strength, elongation and bend tests. Grooves 5/16 and 7/16 in. deep, 2 in. wide, were machined into the surfaces of the specimens transverse to the direction of the pull or bend.

One pass of the stainless weld metal was laid into the 5/16 in. grooves and two passes in the 7/16 in. grooves. AISI Types 308 and 310 stainless steel lime coated rods were used. The physical tests were conducted in the as-welded condition without stress relieving, machining, grinding or peening of the surface.

WHAT TESTS SHOWED—The test results showed that the stainless 310 overlay did not reduce the physical properties of the ASTM A-212 Grade A plate. The tensile, yield, elongation and bend figures required for this grade were met or exceeded by a sub-

Mr. Hopper is Chemical Engineer, Crucible Steel Co. of America, and veteran member of TAPPI Corrosion Subcommittee (now a full Committee) and its Chemical Engineering Committee.

PAPER LINT PROBLEMS?



Roll Them Away, Automatically, With the AAF

Auto-AIRMAT

Filter

THE double-barreled problem of removing lint from the air, then disposing of the collected material has been solved. AAF's AUTO-AIRMAT filter—the *only* filter that solves lint problems automatically—not only removes these troublesome fibers from the air but cleans itself at the same time.

Lint literally "knuckles under" to the AUTO-AIRMAT. The Airmat media, installed in roll form at top of unit, becomes a moving filter curtain that is re-rolled at bottom with its lint load. Movement of the curtain is entirely automatic, with clean media being introduced only in sufficient quantity to lower resistance below the established maximum. Collected lint is bundled into a roll for easy disposal.

If paper lint seems to have the "run of the mill" in your plant and is resulting in costly "week-end cleaning", get all the facts about the AUTO-AIRMAT—the filter that *solved* the lint problems of the textile industry. For complete product information, call your nearby AAF representative or write for Bulletin 234.

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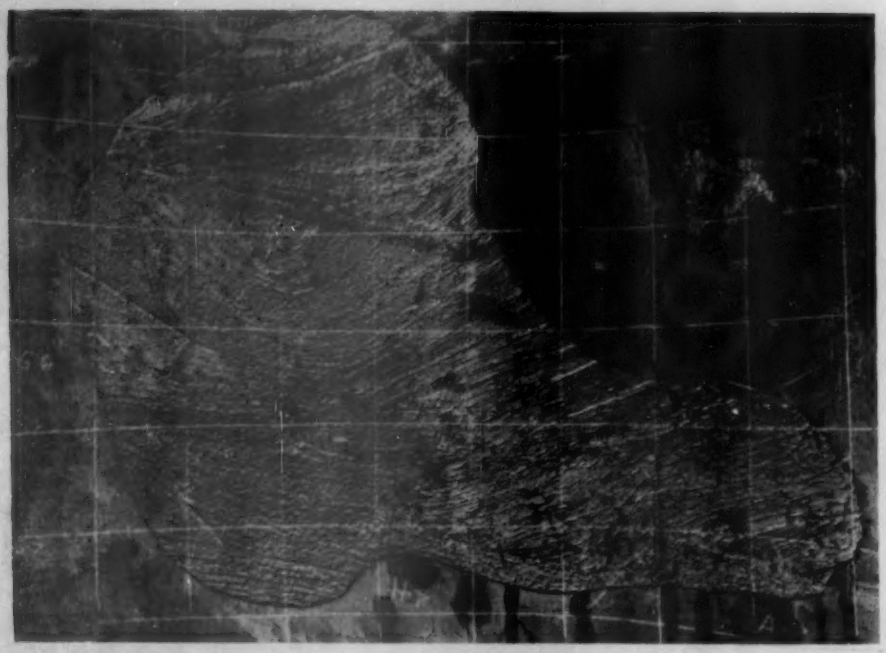

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One pass of the stainless weld metal was laid into the 3/16 in. grooves and two passes in the 7/16 in. grooves. AISI Types 308 and 310 stainless steel lime coated rods were used. The physical tests were conducted in the as-welded condition without stress relieving, machining, grinding or peening of the surface.

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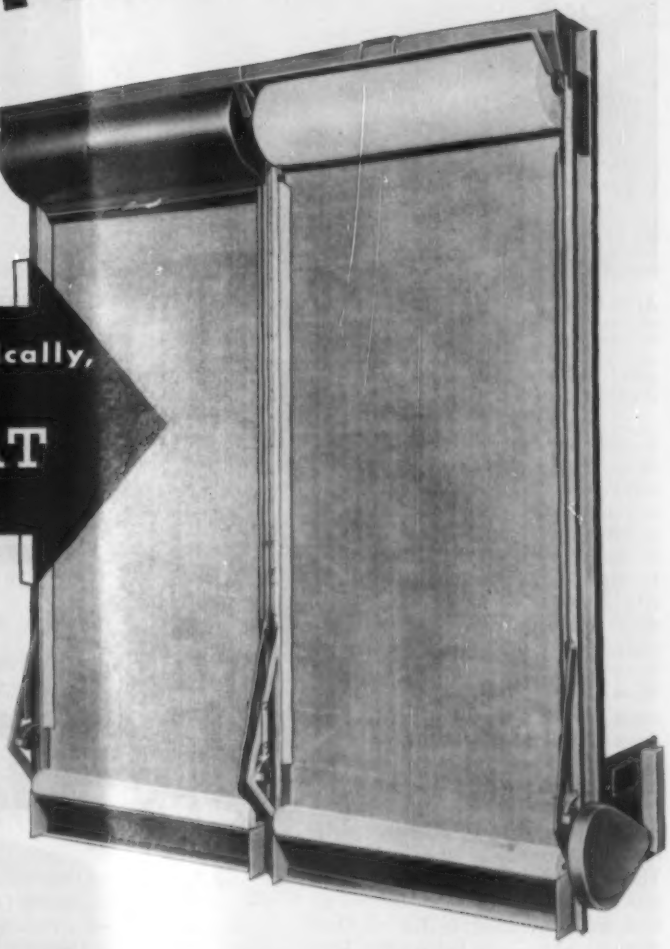

Roll Them Away, Automatically, With the AAF

Auto-AIRMAT Filter

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APPLIED TO NEW DIGESTERS—A portion of the top shell and head plates of three new digesters recently completed by Graver Tank & Mfg. Co., Inc. for West Virginia Pulp & Paper Co., was overlaid with a succession of stainless weld beads to guard against localized corrosion in an area especially vulnerable. Photo courtesy of Graver Tank & Mfg. Co., Inc.

APPLIED TO DOME—Here, a Crucible stainless steel weld overlay has been applied to the dome of a kraft digester. The dome is a frequently attacked area.

stantial margin. Stainless 308 test specimens did not meet the requirements for bend and elongation. Tensile and yield strengths were considerably lower than for 310. The difference in the physical results between the two stainless deposits is felt to be due to the greater effect of dilution at the interface between the carbon steel and stainless using the lower alloy content 308 weld deposit. There was in no case any sign of separation of the weld metal from the carbon steel base metal, even when the bent and pulled specimens were examined microscopically.

Corrosion tests were also run on metallurgically polished specimens taken through the weld deposits. These tests were run in white liquor and did not show any accelerated attack in or adjacent to the stainless weld metal overlay. Subsequent tests have shown that in the boiling white liquor, there is a potential difference of as much as 310 millivolts with the Stainless Cathodic and the carbon steel Anodic. However, within a few minutes a film forms on the surface of the carbon steel and the potential difference drops to almost zero. This accounts for the freedom from galvanic attack between the highly "noble" stainless steel and the less "noble" carbon steel.

On the basis of these tests, permission was granted by the Insurance Underwriters to install the overlay. These digesters, considered almost ready for replacement four years ago, are still in service and operating at the same pressures.

Since that time, larger areas have been installed, ranging up to almost 220 sq. ft. in one overlay. The results have been very satisfactory. One case, however, has developed, where two small areas surrounding approximately 170 sq. ft. of overlay, showed attack after overlay. It has been recommended that these areas be covered by an extension of the overlay.

Recently three new digesters have been put into operation with stainless steel overlay installed in the shop by the fabricator of the vessels before shipment. This protection has been placed where previous experience indicated susceptibility to thinning.

ED HOPPER—A "front line fighter" in kraft industry's battle against costly digester corrosion.

HOW PROGRAM IS SET UP—In setting up our overlay program, the following practice has been employed. The digesters are checked by Audigage and the thinned areas ready for overlay are outlined with chalk using a rounded countour to eliminate sharp angles. The area is extended 2 to 4 in. all around to insure covering all areas subject to excessive attack. The digester is washed down, allowed to dry, and the areas with scale adhering cleaned off.

The areas on side walls are then enclosed with rapidly applied "perimeter" beads. Several of these are applied on the shoulder of the previous beads. On very large areas, the area is divided into sections by dividing beads angled downward at an angle of about 45° to the vertical. The "filler" beads are then started, running from the shoulder of one bead and finishing on the other shoulder. These beads are applied horizontally or with a downward angle of approximately 2 in. drop to the foot. Each succeeding bead is laid in on the shoulder of the preceding bead. This tends to lend support to the molten weld metal. It gives a "shingling effect," thereby covering the thinnest and most diluted portion of the preceding bead. One pass is

About the Author

Any observer of TAPPI corrosion subcommittee (now full committee) work and sessions of past several years would know Edward W. Hopper, chemical engineer and corrosion specialist of Crucible Steel Co. of America. He has been a leading contributor and a leading participant in the joint efforts to help solve one of kraft industry's most costly and mystifying problems of modern times.

For this reason, PULP & PAPER is proud that he has written this article especially for this magazine.

After attending Pratt Institute and Columbia University, where he took chemical engineering and mining and geology, he served as assistant to Prof. Colin G. Fink and Lincoln T. Work. With Dr. Fink, Mr. Hopper carried on the experimental work and developed the first continuous electrolytic strip tin plating process. Mr. Hopper put the first electrolytic tin line into operation at the Midland Plant of Crucible Steel. He acted as consulting chemical engineer prior to coming with Crucible.

utilized in the overlay and an attempt is made to hold the weld deposit to .100 to .125 in. in thickness. One or more final, rapidly applied "perimeter" passes may be made around the entire area to smooth out the contour and edges. This procedure also tends to cover up any diluted carbon steel-stainless steel heat affected areas.

Somewhat comparable procedures have been worked out for overlaying the dome and cone sections. These do not offer serious problems except for the position of welding. Type 310 lime coated rod has been employed in sizes ranging from 1/8 to 3/16 in. with the work "negative." This procedure has been outlined more completely in Section IX, Repair of Kraft Digesters.[1]

Crucible emphasizes that the stainless overlay method is simply a means for stopping erosion and corrosion and extending the service life of the vessels. We do not suggest or recommend the method for building up digesters thinned beyond the corrosion allowance so that they may be returned to the original operating pressures. Test results do show, however, a marked increase in the yield and tensile strengths of the composite carbon steel-stainless overlay section as compared with the carbon steel alone. The added strength introduced by the stainless overlay can be considered as an added safety factor.

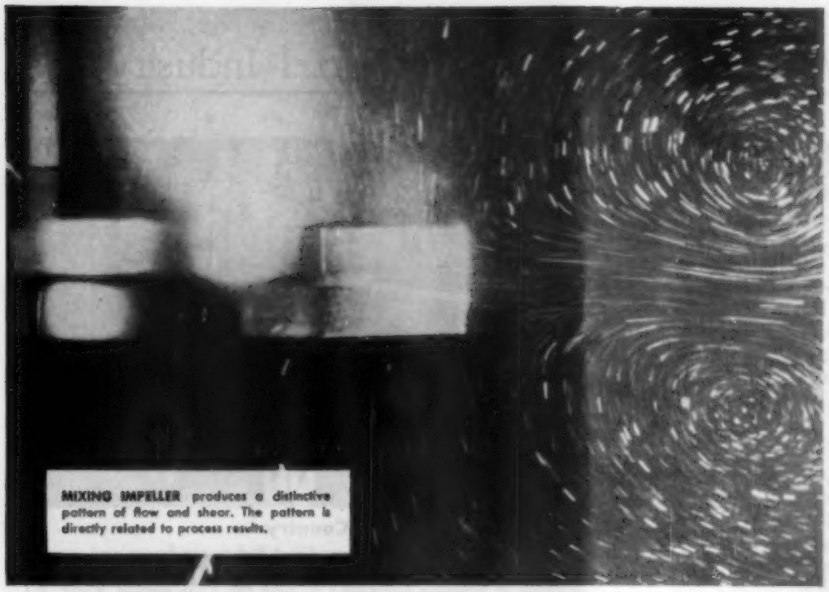
Any company considering an overlay installation should clear the matter with their engineering staff and insurance underwriters. They should also plan on taking the necessary action before the digester has reached the corrosion limit. Crucible engineers are available to assist in setting up the program.

While the Crucible developed stainless steel overlay is proving to be one valuable tool in arresting erosion and corrosion in kraft digesters, the company's Customer Corrosion Laboratory is continuing research on the fundamental problems of corrosion in the pulp and paper industry, as well as for all chemical process industries.

[1] TAPPI Monograph Series No. 12 Inspection of Digesters.

P & P Takes a Bow

"A big bouquet to the magazine PULP & PAPER for digging out more facts on U.S. foreign mills aid. It turns out that Austria, now a sizable competitor with North American mills in the world market, got $40,000,000 and not $20,000,000. That's peanuts here but a lot of dollars in Austria where it created a new industry big enough to be felt in world trade."—*Celluletter.*



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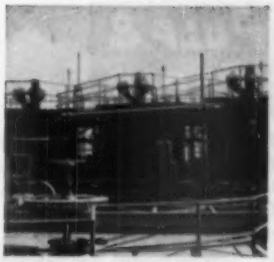

GET UNIFORM MIXING, rapidly, in any size tank, with LIGHTNIN Mixers like these. Hundreds of power-speed combinations. Sizes 1 to 500 HP.

NO STUFFING BOX TO REPACK on LIGHTNIN Side Entering Mixers equipped with new rotary mechanical seal that runs for years, but is easy to replace if necessary. A maintenance cost-saver on rectangular chests and other large tanks. Sizes 1 to 25 HP.

MIX ANY FLUIDS rapidly, at low cost, with LIGHTNIN Portable Mixers. Make any open tank an efficient mixing vessel. No baffling is needed. Thirty models, sizes ⅛ to 3 HP.

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You're looking at a "pattern for profit," set in motion by the whirling blades of a fluid mixing impeller.

Whenever and wherever you mix fluids in a tank, a pattern like this works for you—or against you.

When it works for you, you get uniform coatings, at low cost. You get a smooth-running starch system. You get stock of good consistency, right through to the headbox, with a minimum of control measures.

How do you make it work *for* you? That's the $64 question. It involves knowing just how big to make the impeller, for optimum fluid *flow* in the vessel; just how fast to rotate it, for the right degree of *turbulence.* And how to get *both* with the least power input.

We've spent 25 years studying the process results produced by this impeller, and by modifications of it. Learning what this flow pattern can do—to make sure you get the *right* "pattern for profit" in your tanks and stock chests.

We've reached a point where we can guarantee fluid mixing results, unconditionally. In some cases, we can save you as much as 40% on initial mixer cost, by eliminating the need for excessive horsepower.

If you think "profit-pattern" mixing is worth looking into before you select any more fluid mixing equipment, get a headstart now by calling in your LIGHTNIN Mixer representative. (His name is in your copy of Thomas' Register.) Or write us today.

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MIXCO fluid mixing specialists

Get these helpful facts on mixing: cost-cutting ideas on mixer selection; best type of vessel; installation and operating hints; full description of LIGHTNIN Mixers. Free—no obligation. Just check data you want, tear out and mail to us today with your name and company address.

- ☐ DH-50 and DH-51 Laboratory Mixers
- ☐ B-102 Top Entering Mixers (turbine and paddle types)
- ☐ B-103 Top Entering Mixers (propeller types)
- ☐ B-104 Side Entering Mixers
- ☐ B-107 Mixing Data Sheet
- ☐ B-108 Portable Mixers (electric and air driven)
- ☐ B-109 Condensed Catalog (complete line)
- ☐ B-111 LIGHTNIN Rotary Mechanical Seals

MIXING EQUIPMENT Co., Inc., 141-d Mt. Read Blvd., Rochester 11, N. Y.
In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 10, Ont.

PULP & PAPER

What's New in Canada's No. 1 Industry

ISSUE OVER FOREST LICENSES—Forest management licenses continue to be a contentious issue in British Columbia, and the provincial government has appointed Judge A. E. Lord to conduct an investigation into charges by Gordon Gibson, Liberal member of the legislature and a lifetime logger, that "money has talked" in connection with the granting of such licenses. The government claims there have been no irregularities.

DECISION ON KITIMAT—Final decision on the proposed $70,000,000 pulp and newsprint mill for Kitimat, B.C., to be financed by Powell River Co., and Aluminum Co. of Canada, depends on forest surveys to determine accessibility of adequate pulpwood, according to H. S. Foley, president of Powell River. Production would not be on the market until 1959.

MACMILLAN NEWSPRINT PLANS—Newsprint to be manufactured by the new 300-ton MacMillan & Bloedel mill at Port Alberni, B.C., will be marketed by mid-1957 through Wright Co. of New York. A subsidiary tentatively named Alberni Paper Co. will direct this operation.

Howard Simons is engineering the newsprint mill, the new board mill and expansion of the Port Alberni pulp mill. Newsprint will be made on a 275-in. Beloit machine.

GREAT LAKES TO EXPAND—Adopting recommendations by an engineering organization which recently completed a survey of the Fort William, Ont., mill, Great Lakes Paper Co. has decided to spend $1,600,000 as the first step in an extensive improvement program, according to President C. J. Warwick.

DRYDEN ADDS TIMBER FIRM—Dryden Paper Co., Dryden, Ont., has acquired the Jan Timber & Contracting Co., which will continue as a separate unit, with Frank Hoey as general superintendent.

TEN MORE BAUER CLEANERS—Powell River, which installed a battery of Bauer Bros. Cleaners several months ago, has now put in ten additional larger Bauer Cleaners between fan pump and headbox of No. 3 machine. According to J. A. Cochrane, chemical engineer for the company, the results have been decidedly encouraging.

Logging in British Columbia's Cariboo Country

A Model 22-B Bucyrus Erie shovel, swinging a modified Bohemian boom and powered by an International UD 14A diesel engine, is shown here loading Douglas fir logs from a cold deck at the operations of Scheller Logging Co. near the Cottonwood River, B.C. This is in the heart of the Cariboo forest country along the Fraser River. Many logs are shipped by railroad to pulp mills and sawmills in British Columbia. Western Plywood Co. at Quesnel uses some for peelers. It has applied for a forest management license which will give it access to additional pulpwood to supply a proposed chemical pulp mill on Quesnel Lake.

These Cleaners, nine primary and one secondary, are 7 ft. long, with a 12 in. inside diameter at the top or large end. In operation, the mixture of pulp and water is pumped into the top of the cone at 50 p.p.i. pressure. This rotary action causes the mixture to spiral down the cone, and the heavy particles of dirt are thrown out of the pulp suspension and rejected continuously through a small nozzle at the bottom of the unit. Most of the mixture returns up the center of the cone and out through a pipe in the top.

ANGLO CANADIAN EXTENSION—Anglo Canadian Pulp & Paper Mills, Ltd., Quebec City, has been granted a 3-month extension of its option on a 2,000 square mile tract of northern Saskatchewan woodlands. The extension is to give the company time to complete its investigations for a proposed kraft pulp mill 50 miles northeast of Prince Albert. If the option is taken up, the company plans to start construction of the mill by June, 1955, and to spend $5,000,000 the first year.

EDDY FINANCING—The E. B. Eddy Co., Hull, Quebec, has undertaken financing to the amount of $10,000,000 in first mortgage bonds to cover the cost of recent expansion and other corporate purposes.

NEWSPRINT OUTPUT RISES—Newsprint production for 1954 increased in 21 of 30 producing countries, excluding Soviet Russia and satellites, according to the Newsprint Association of Canada.

Canada contributed about 240,000 tons to the increase, of 43% of the total. Demand has been notably greater in some European countries.

North America absorbed 6,500,000 tons in 1954, an increase of almost 2,000,000 tons, or 43%, over 1946. Europe took about 1,300,000 tons more in 1954 than ten years ago, a gain of 109%.

DIGESTER MADE IN B.C.—First digester to be built on Canada's west coast for the pulp industry has been completed by Victoria Machinery Depot for Canadian Forest Products semi-bleached sulfate mill at Port Mellon, B.C.

OTHER NEWS—Spokesmen for Donohue Bros. newsprint mill at Clermont, Que., deny reports negotiations are under way for its sale.

Manitoba Paper Co., Abitibi subsidiary, is paying more than $1,000,000 a year to farmers and veterans on land settlement projects for pulpwood, cut on private and Crown lands.

Important changes and improvements for the board mill and groundwood mills of the E. B. Eddy Co. at Hull will represent an investment of $5,000,000 over the next two years.

A one-year extension has been granted to Anglo-Canadian Pulp & Paper Mills on its option of 2,000 square miles of Saskatchewan pulpwood forest for a mill.

SHIBLEY CONTESTANTS and Moderator (l to r): DON WOODEN, Weyerhaeuser Filter Plant Engineer; JOHN GRIFFITH, C-Z Kraft Mill Chemical Engineer; KENNETH BLACKMORE, Puget Pulp Staffer who worked out speedier alpha cellulose determination; JOHN V. GOULD, Everett P & P Engineer, and Moderator FRED WELEBER.

How to Do It Better—Contest Theme

● Kenneth A. E. Blackmore, of Puget Sound Pulp & Timber Co., and Don Wooden, Pulp Div., Weyerhaeuser Timber Co., Everett, Wash., were winners of the 1955 Shibley award competition March 4 at Everett, Wash. This contest, inaugurated in 1939, in sponsored by Pacific TAPPI for younger mill technicians and operators. Each of four papers presented at the session covered newly developed efficiencies applicable to the industry.

Mr. Blackmore's *"A Rapid Method for the Determination of Alpha Cellulose in Pulp,"* treated on a practical rapid determination which can be carried out in 40 minutes as compared to six to 55 hours by generally accepted methods.

Brief outline of method:

1. Disperse one-gram pulp sample in water with Waring Blendor and from pulp into handsheet with 150-mesh screen sheet mold.
2. Remove handsheet and heat between blotters in electric handsheet hotplate for about 5 seconds.
3. Remove sheet from between blotters and place in 105°C. oven for 3 minutes.
4. Weigh 0.500 g. sample of the pulp in 105°C. oven equipped with balance accurate to 0.5 mg.
5. Add 15 ml. of 17.5% NaOH at 20°C. and agitate 150 seconds in high-speed shaker.
6. Add 15 ml. distilled water and mix for 5 seconds.
7. Pour into 40 mm. fritted glass funnel (with Ace porosity "D" filter) and remove excess NaOH by suction within 20 seconds.
8. Wash with 750 ml. of distilled water in 100 ml. portions, slightly increasing suction during washing.
9. Pad formed on filter should be of uniform thickness and cover entire filter area.
10. Remove pad and place in 105°C. forced draft oven and weigh on analytical balance when dry or weigh directly when dry in a 105°C. oven equipped with balance accurate to 0.5 mg.

NEW FILTER PLANT DESIGN—Co-winner Wooden's paper, *"Unique Structural Treatment Featured in New Filter Plant,"* concerns novel concrete structural features of a 28 MGD water treatment plant at Weyerhaeuser Timber Co's. new Everett kraft mill—specifically, the settling basin walls, two 3-way flat slabs used in clear well and filter house and control room floor slab.

"These represent a type of structure seldom, if ever, encountered in the daily course of events," he said. "Each also represents a timely solution to a problem peculiar to the circular layout of this plant."

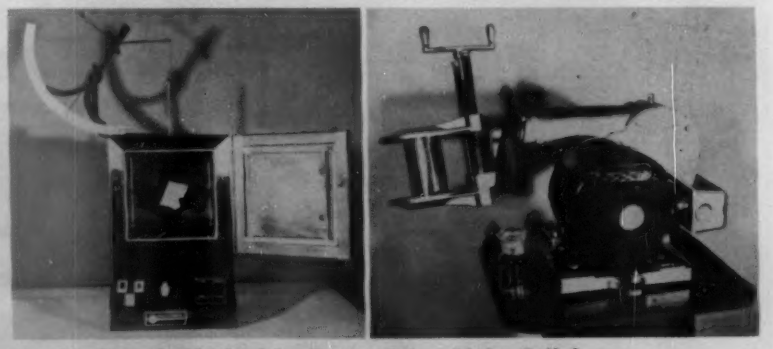
Northwest Filter Co., founded by the late Kenneth "Cap" Shibley, for whom the Shibley Award was named, designed the filter plant physical layout and controls. Mr. Wooden designed the structures (see complete description, **Pulp & Paper**, Jan. 1954).

IMPROVED TRIMMING—John V. Gould, engineer, Everett Pulp & Paper Co., presented *"Paper Handling at Trimmers,"* revealing finishing room ideas he conservatively estimates increase output by 50% per trimmer and 25% per worker.

Salient features:

1. Air-jet tables ahead of slat conveyor leading to trimmer. 2. Sufficient tables to give production storage, providing cushioning to keep trimmer continuously supplied. 3. Rounded hoists ahead of tables so lift trucks can load from more than one direction. 4. Automatic trimmer loading. 5. Radial take-away sections permit trimmerman to feed trimmed paper directly to several packaging tables.

IMPROVED WASHING—John G. Griffith, kraft mill chemical engineer, Crown Zellerbach Corp., Camas, Wash., presented *"A Simple Test to Aid in Control of Brown Stock Washing."* This consists of taking pulp sample from washer, squeezing out liquid, and after a standard dilution, measuring resistance of the solution.

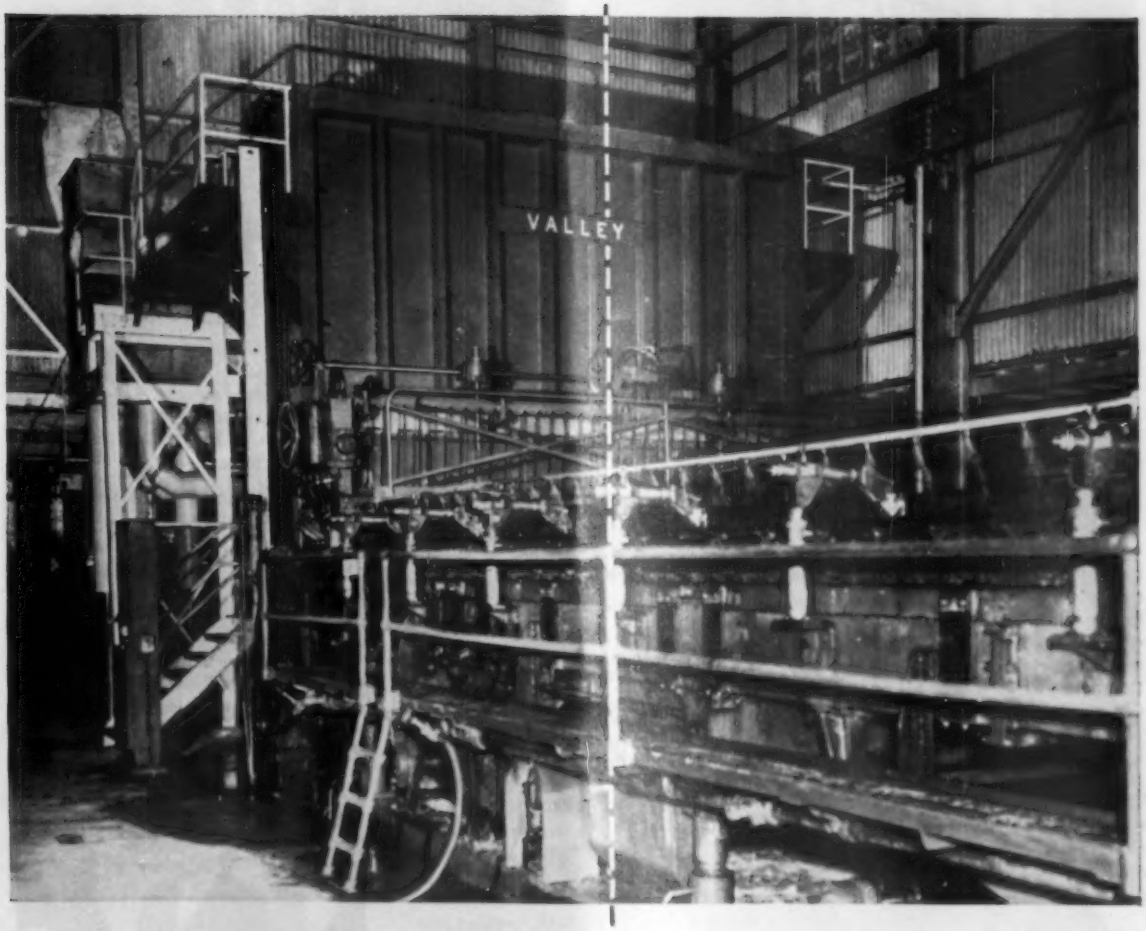


Used in Speedy Method for Determining Alpha Cellulose

These are used in Steps 4 and 5 (see story). Left, thermal balance for weighing 500 MG oven dry sample. Right, shaking device for agitating pulp with 17.5% NaOH slurry.

Weyerhaeuser's Unique Filter Plant

Another 1954 START-UP



on No. 4 PAPER MACHINE

ST. REGIS PAPER CO.

Pensacola, Florida

One of two installations of Valley Stock Entrance Equipment made by St. Regis in 1954 at Pensacola. This Headbox has new features of increased adjustability and performance over a great range of weights and speeds.

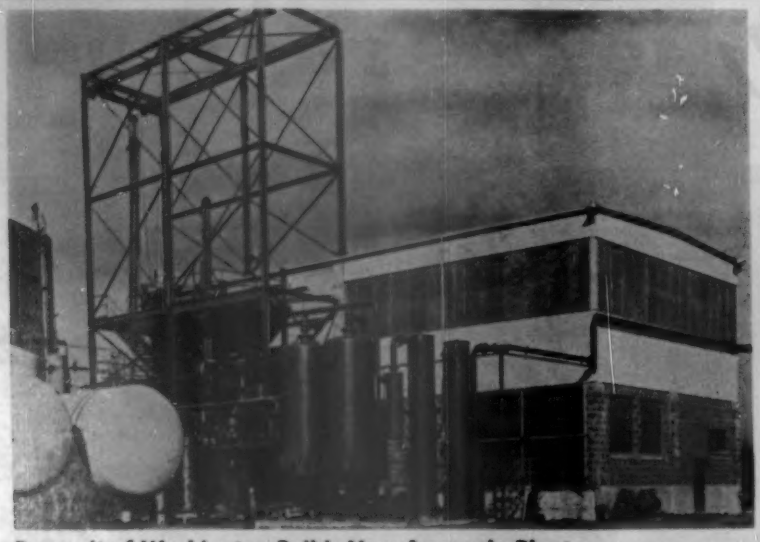
VALLEY

stock entrance equipment

write... **VALLEY IRON WORKS CO.** APPLETON, WISCONSIN

Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., P.O. Box 903, Station "O", Montreal 9, Quebec

NEWS FROM EQUIPMENT AND SUPPLY COMPANIES



Pennsalt of Washington Builds New Ammonia Plant

Here is new anhydrous ammonia plant being built at Portland, Ore., second ammonia plant in Pacific Northwest, scheduled to go on stream this spring, according to Fred C. Shanaman, President of Pennsylvania Salt Mfg. Co. of Washington. A high pressure modified Casale type process, it will use by-product hydrogen from Pennsalt's caustic-chlorine plant built at Portland in 1946. High purity anhydrous ammonia for industrial purposes will be produced.

LINK-BELT CO. gives data on a complete line of vibrating screens for all medium and heavy duty screening operations in a new Link-Belt Co. Book. These efficient screens are used for scalping, sizing, dewatering and rinsing (write Dept. PR, 307 North Michigan Ave. Chicago, (1), for Book No. 2554). The design and rugged construction of Link-Belt CA screens assure a long life and fast separation in sizing chips, etc. These screens have stress-relieved decks which are riveted to high-tensile side plates to form a completely integrated, rigid box assembly available with one, two, or three screen decks.

AMERICAN CYANAMID now offers Cyfor Fortified Rosin Size in a new dustless form, announces John M. Walsh, manager of Cyanamid's Paper Chemicals Dept. The new anti-dusting process was developed in Cyanamid's research laboratory and is being applied to all dry grades of Cyfor. Cyfor Fortified Size is being effectively used by paper mills to replace standard rosin sizes previously employed.

J. O. ROSS ENGINEERING CORP., 444 Madison Ave., New York City 22, offers a new Bulletin No. 32 which discusses the need for controlled conditioning of paper.

BULKLEY, DUNTON PROCESSES, INC. announces through William L. Krapf, manager, the appointment of J. L. Middleton Co. of Miami, Fla., and O'Brien Specialty Co. of Syracuse, N. Y. to handle the complete line of Bulkley, Dunton equipment, including Colloidair Separators for clarification of waste and process liquids.

THE BABCOCK & WILCOX CO'S. BOILER DIV., has formed a new dept. consolidating contract and erection phases of their operations. It will be known as Contract and Erection and will be located near their largest manufacturing plant in Barberton. **O. M. NIELSEN**, vice president of the boiler div. also announces that **LAURENCE W. HAYWARD**, former assistant chief engineer of the boiler div., has been named manager of the new dept. **R. W. FOX**, contract manager and **J. P. CRAVEN**, erection supt., will continue in charge of these functions under Mr. Hayward.

WALDRON CORP., P.O. Box 791, New Brunswick, N. J., offers on request its Bulletin 1018 on its new Waldron Multi-Coater which does the work of 7 different light duty coater plus a gravure printer and light duty embosser.

CAMERON MACHINE CO. has a new slitting and roll winding machine, model "400", designed for converting plants and finishing rooms. It is capable, says the company, of running 1000 fpm and has rewind capacity of 30 in. dia.

COCHRANE CORP. has developed a continuous blowoff system which maintains uniform boiler water concentration, reducing blowdown requirements, says the company. This results, they say, in a saving of feedwater with reduced water treatment and pumping costs. Cochrane also has a new booklet No. 5200, on their multiport relief valves, designed for steam, air or gas service.

JOHNS-MANVILLE gives complete information on their structurally strong sheet material which is said to both build and insulate at the same time. It is called *"Marinite For Driers, Ovens Breechings and Housings"* and can be obtained from the company at 22 E. 40 St., N.Y. 16.

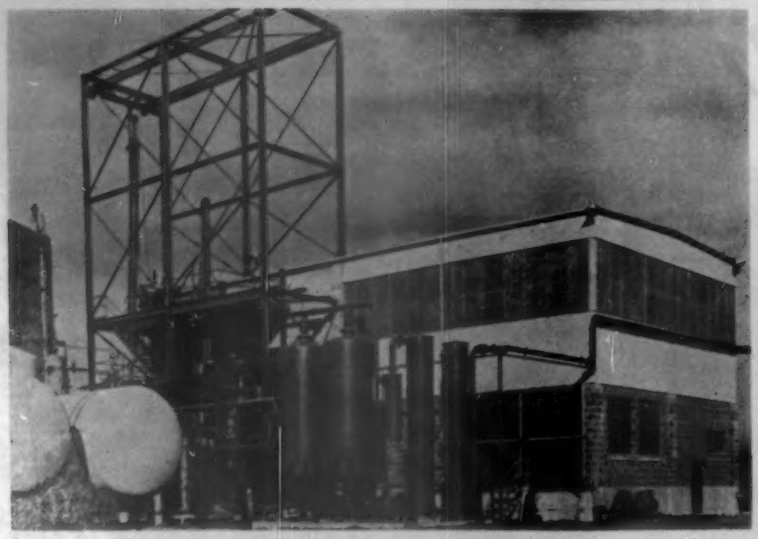
TIDLAND MACHINE CO., Camas, Wash., manufacturers of Tidland pneumatic wind and unwind shafts, have acquired the Camas Machine Works, an old business specializing in machine work for the paper industry. Arthur Williams, partner in the shop, becomes a partner in Tidland Machine Co. **E. H. TIDLAND**, formerly with Crown Zellerbach and Pacific Coast Supply Co. for 40 years, and his son **C. R. TIDLAND** are members of the firm.

RELIANCE ELECTRIC & ENGINEERING Co.—New 12-page illustrated bulletin describes "the new Reliance Super 'T' Line D-c. Motors with Dynamic Response" (book title). It explains how dynamic response is the new standard performance of the Super 'T' Motors, which was formerly found only in specially designed motors. Information is included on speed ranges, acceleration rates, enclosures, dimensions, and selection data.

Inspect New "Self-Doctoring Topress" Roll

L to r: BOB BAER, Sales Mgr., and NORMAN JOHNSON, Gen. Mgr., Griffith Rubber Mills, Portland, Ore., greeted ERVIN KOERNER, Sales Mgr. of Woonsocket Rubber & Plastic Co., Woonsocket, R. I., licensed to process Griffiths' new "Self-Doctoring Topress" roll for Northeast, Midwest and Southern paper mills. Later they toured Pacific Coast mills using the new rolls made of a special formula rubber for which Griffith Rubber Mills claim exclusive rights. As opposed to old top press rolls of hard rubber, this new rubber compound is a resilient, supple material. According to manufacturer, it eliminates need for doctor blades and gives better water removal at higher speed, plus longer felt life.

NEWS FROM EQUIPMENT AND SUPPLY COMPANIES



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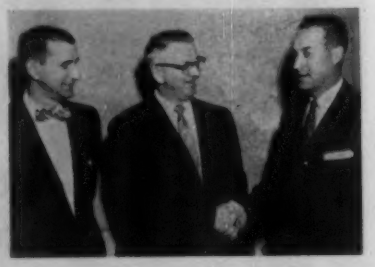

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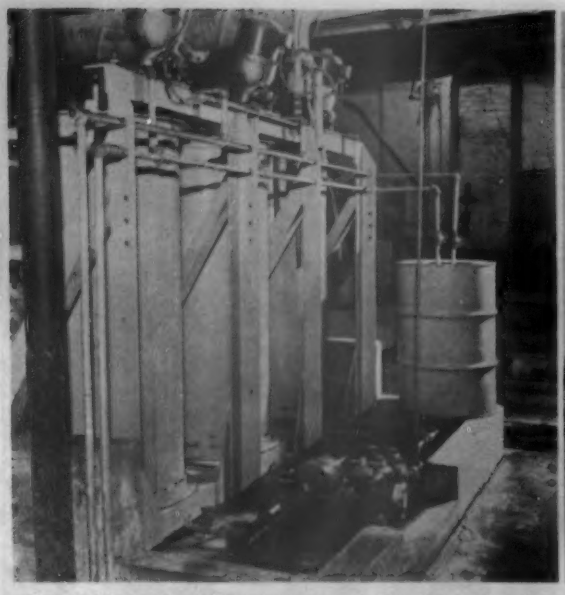


PHOTO NO. 1—In a Midwest tissue mill, this Milton Roy controlled volume pump model MD1-21-58-SML is adding dye to stuff box. Dye tank is shown. Mixing Equipment Co. Inc.'s "Lightnin" Mixers are propeller type attachments shown above.

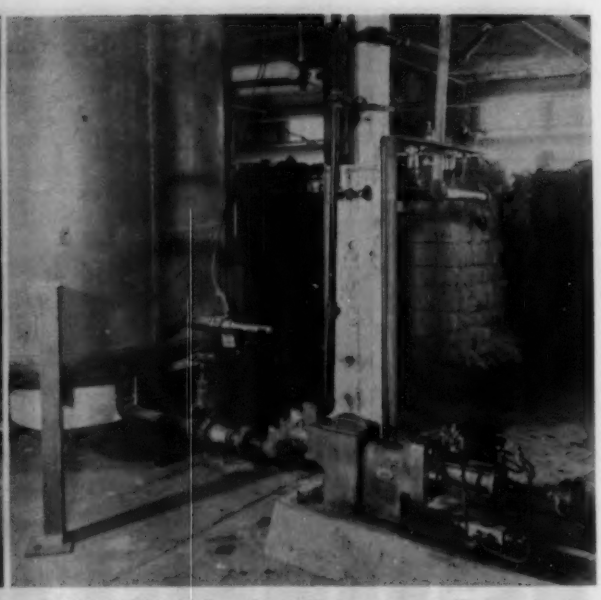


PHOTO NO. 2—In a large Eastern paper mill, an automatic alum dilution system. This shows air-operated 4-way valve and "aiROYmetric" controlled volume pump.

How a New Flow Control Makes Savings

Demands for quality control, more production, savings in costs and space lead to controlled volume pumps

• The pressure of modern paper technology is gradually replacing dogma with facts. Not long ago, it was commonly stated that paper was made at the beater. Currently experienced mill operators agree that certain properties are imparted to pulp at the beater or refiners, but that the final characteristics of the sheet result from the many modifications of the pulp made at each stage of the process.

These characteristics result predominantly from the controlled addition of small quantities of chemicals to the pulp. During the early development stages of chemical modification of pulp the "two quart sauce pan" served as the measuring device in batch processes. However, the persistent demands for quality control, increased production, reduced costs and space conservation have led to continuous processing and a new flow control approach using controlled volume pumps, adapted to meet low capacity flow control problems. They are reciprocating plunger positive displacement type pumps which accurately measure a controlled volume of additive on each plunger stroke and deliver it under pressure.

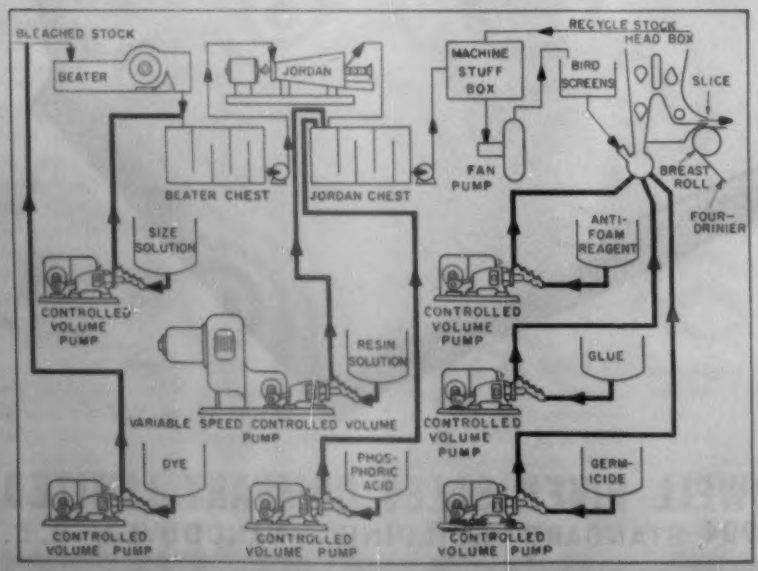


FIG. 1—Seven Applications of Controlled Volume Pumps for Additives in Paper Process. (This is a composite of actual mill installations, but not in a single mill.)

Controlled volume pumps handle low capacity flows of either concentrated or dilute solutions with equal accuracy and are relatively unaffected by viscosity, density and pressure differential. These are advantages:

Increased production rates are possible. Mixing time is shortened or eliminated.

Chemical requirements are lower to achieve the same results. Excess reagent is unnecessary to prevent local under-treatment.

Reactions are faster and more complete. Time for mixing is eliminated.

Capital costs are lower since large dilute reagent storage tanks are eliminated. Small tanks for concentrated reagents conserve space.

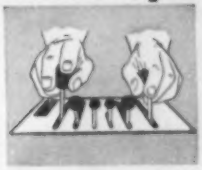
Quality control is virtually assured. Uniform distribution of additives in-

In every size, Link-Belt Speeder offers

more speed, stamina, power, work-time!

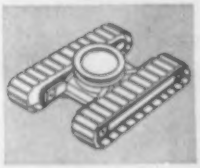
MOUNTAINOUS PILE OF PULPWOOD disappears fast with K-365 rig on the job. Operator handles grapple with ease from Speed-o-Matic control panel—has sure, safe "feel" of the load all the way.

More speed—



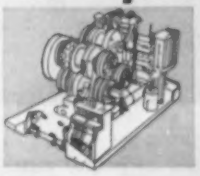
Speed-o-Matic, the true power-hydraulic control—smooth, positive response—perfect "feel" for speed with accuracy. Engineered to consider the human factor, greatly reduces operator fatigue.

More stamina—



A Link-Belt Speeder withstands continuous heavy-duty, high-speed operation. For proof, compare similar sized rigs with and without counterweights. Link-Belt Speeders have more "live weight", more strength built into every component.

More power—



Get more line pull, more digging power, lower fuel costs. Link-Belt Speeder design calls for precision-machining, anti-friction bearings and splined shafts at every point that helps transmit *rated hp* into *usable* hp.

More work-time—

A bigger percentage of shift is spent in actual "work-time." By minimizing operator fatigue, Speed-o-Matic boosts output up to 25%; also eliminates frequent on-the-job clutch adjustments and maintenance.

Visit your Link-Belt Speeder distributor and see these great machines first hand. A demonstration can be arranged at your convenience to prove that Link-Belt Speeder gives you most for your money.

You're ahead on every job—

because Link-Belt Speeder is *years ahead* of the shovel-crane industry. Only Link-Belt Speeder offers you Speed-o-Matic's true power hydraulic control and so many other outstanding design and construction advantages. For facts on every machine in the ½ to 3-yard, 10 to 60-ton work range, contact your Link-Belt Speeder distributor. Link-Belt Speeder Corp., Cedar Rapids, Ia.

LINK-BELT SPEEDER

Builders of a complete line of crawler and rubber-tired shovel-cranes

13.707

herent in controlled volume pumping eliminates localized defects.

Uniform distribution of additives also increases the retention of dyes, pigments and fillers in stock on machine. This reduces white water recovery problems, and helps reduce two-sidedness in the sheet.

STOCK PREPARATION USES—Stock preparation imparts most physical characteristics of the sheet. Bleached stock is subjected to a series of physical and chemical treatments (Fig. 1). The system consists of beating, refining and blending of stock with papermaker's chemicals.

Since the quantities of chemicals involved are relatively low, the attendant low capacity flow control problems must be simply solved to insure product quality control of the sheet.

The flow diagram illustrates various controlled volume pumps adding reagents at several points. These actually represent techniques currently employed, in many mills. A dye pump is shown adding dye to the beater, but many mills add dye at stuffbox or headbox. The drawing, then, is a composite representation and does not intend to imply that all additives are used in any single process or necessarily in the order shown.

STOCK DYEING—Papermakers use approximately 12,000 tons of dyes and pigments each year, at an average rate of 3 to 8 ounces of coloring agent per ton of paper.

There are four common techniques for adding color to paper.

Stock dyeing accounts for probably 95% of all colored paper and is the only true dyeing technique.

Surface coloring is used principally to color heavy paperboard, on one or both sides. It is usually used at the calender and is sometimes called calender coloring.

Dipping is a standard method of coloring decorative tissue. The sheet is dipped into concentrated dye, squeezed and dried.

Coating of light, hard, opaque papers may include dyes or pigments with filler and size in the coating material.

Stock dyeing is easily adapted to use of controlled volume pumps. Older batch techniques, where dye is added to the beater and allowed to mix thoroughly, are time consuming and can cause overworking of stock before uniform blending is achieved. Controlled volume pumps add dye continuously, in small increments, in proportion to stock flow rate. Intimate blending is rapidly obtained.

Controlled volume pumps have

GEO. E. SHAFFER JR., Milton Roy Co. Engineer—native of Philadelphia; c.e. graduate of Drexel Institute after air force service in WW II.

simplified stock dyeing to the point where it is no longer necessary to add dyes at a remote location from the machine. The intimate mixing possible with only mild agitation has prompted many paper makers to add dyes as far forward as the headbox. Only the machine requires cleaning when a color change is necessary.

Actually, the choice of location for dye addition depends on the type of dye used, the grade of paper, effect of other additives, and actual plant experience. Controlled volume pumps meter highly soluble direct, acid and basic dyes in solution and the partially soluble or insoluble acid dyes, mordant dyes and pigments as slurries.

Photo No. 1 shows one of the largest of these pumps (Model MD 1-21-58-5 ML) adding dye to stock at a large Midwest tissue mill. It adds a maximum of 41 gph of dye solution to the stuffbox. Dial adjustment of stroke length permits precise adjustment of pump capacity while the system is operating. Three dye tanks manifolded to this pump make it possible to dye any desired color and also to change color during processing with a minimum of broke.

Other chemicals are usually added in dyeing operations to insure uniform coloring and to promote color fastness. For example, constant speed pumps add soda ash and sodium aluminate to control pH in high pH (6.5-7.0) dyeing. However, they more frequently add alum and occasionally sulfuric acid to control pH in normal operations within the range of pH 4.5-5.5. The automatic alum dilution system in Photo No. 2 saved one mill two 16,000 gal. dilute alum storage tanks.

This automatic dilution system employs an air-operated controlled volume pump to accurately meter concentrated alum in a fixed ratio of the water flow. As illustrated, the control equipment comprises a non-totalizing positive displacement meter on the water line, an air operated 4-way master valve and an air-operated "aiROY-metric" controlled volume pump. An air valve is mounted on the positive displacement meter and emits an impulse for every fixed number of gal-

herent in controlled volume pumping eliminates localized defects.

Uniform distribution of additives also increases the retention of dyes, pigments and fillers in stock on machine. This reduces white water recovery problems, and helps reduce two-sidedness in the sheet.

STOCK PREPARATION USES—Stock preparation imparts most physical characteristics of the sheet. Bleached stock is subjected to a series of physical and chemical treatments (Fig. 1). The system consists of beating, refining and blending of stock with papermaker's chemicals.

Since the quantities of chemicals involved are relatively low, the attendant low capacity flow control problems must be simply solved to insure product quality control of the sheet.

The flow diagram illustrates various controlled volume pumps adding reagents at several points. These actually represent techniques currently employed, in many mills. A dye pump is shown adding dye to the beater, but many mills add dye at stuffbox or headbox. The drawing, then, is a composite representation and does not intend to imply that all additives are used in any single process or necessarily in the order shown.

STOCK DYEING—Papermakers use approximately 12,000 tons of dyes and pigments each year, at an average rate of 3 to 8 ounces of coloring agent per ton of paper.

There are four common techniques for adding color to paper.

Stock dyeing accounts for probably 95% of all colored paper and is the only true dyeing technique.

Surface coloring is used principally to color heavy paperboard, on one or both sides. It is usually used at the calender and is sometimes called calender coloring.

Dipping is a standard method of coloring decorative tissue. The sheet is dipped into concentrated dye, squeezed and dried.

Coating of light, hard, opaque papers may include dyes or pigments with filler and size in the coating material.

Stock dyeing is easily adapted to use of controlled volume pumps. Older batch techniques, where dye is added to the beater and allowed to mix thoroughly, are time consuming and can cause overworking of stock before uniform blending is achieved. Controlled volume pumps add dye continuously, in small increments, in proportion to stock flow rate. Intimate blending is rapidly obtained.

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lons of throughput. The 4-way valve receives this air impulse resulting in one complete stroke of the concentrated alum pump.

Mordants added uniformally enhance the color retention of many dyes and all pigments. Controlled volume pumps are often employed to add such mordants as tannic acid, tartar emetic, and organic mordants. They are also used to control rosin size alum complex, and the newer resinous mordants in acid dyeing.

Except for absorbent papers, sizing agents are important additives in dyeing processes. The size, added in small quantities with these pumps following dyeing, coats or envelopes the colored particles and helps promote color fastness.

Most important sizing application using these pumps is continuous preparation of rosin size emulsions. Such pumps are also used to add supplementary sizing agents such as starch, natural gums, rosins and wax emulsions. An additional alum pump is often required at this time to readjust pH and promote size exhaustion (precipitation) onto the dyed fibers. Whether only two pumps are used for direct dyeing, or as many as six in an acid dyeing process, controlled volume pumps insure uniform coloring with minimum use of reagents.

STOCK SIZING—A wide variety of sizing agents are available to increase or decrease paper properties. For example, rosin size used with supplementary wax sizing produces a relatively water resistant paper; however, for towels, blotters or diapers, rewetting agents in conjunction with wet strength resins, produce paper of any desired absorbency. Controlled volume pumps are used to insure uniform distribution of these sizing agents. The pump eliminates localized over and under treatment and makes continuous processing possible.

Primarily, size is added to paper stock in order to improve water resistance, strength and density of the final sheet. In stock sizing applications, controlled volume pumps, used to add starch to the stock at the beater chest, insure consistent results since they are relatively unaffected by nominal changes in viscosity of starch solutions. This makes starch preparation easier.

Rosin emulsions automatically prepared with the pumps are used in addition to wax sizes where water resistance is important. Some new modified rosin sizes are quite effective in higher pH ranges and help broaden the processing base (particularly with basic dyes). Wide variations in viscosity of the hot rosin prior to emulsi-

fication have only a negligible effect on pump control.

Since up to 250 gals. of size emulsion per ton of paper is usually required, paper mills need either a large storage capacity or frequent batch emulsion preparations. Continuous preparation eliminates the latter.

Wet strength resins are important paper additives. High resin cost and low feed rates make controlled volume pumps desirable for economic operation. In addition to imparting wet strength, these resins improve most properties of the final sheet and help reduce other chemical costs. The high repetitive accuracy of these pumps is important in obtaining close control of wet strength with minimum resin.

Modified and unmodified animal glues added to stock at headbox improve flocculation, increase retention of filler and fines, form a smooth denser sheet and permit higher machine speeds. A controlled volume pump will add up to 5 gph of glue to the headbox and accurately controls glue additions over wide viscosity ranges.

In other applications for stock size addition, such pumps add cationic oil sulfonates (rewetting agents) in addition to wet strength resin to improve absorbency, and add liquid defoamers directly to the headbox to reduce or eliminate foam.

In many mills, these pumps continuously add up to 6 gph of germicide to combat slime between stuffbox and machine.

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How Felt Engineer Helps a Superintendent

BY GEORGE E. FITCH

GEORGE E. FITCH, veteran Sales Engineer, Albany Felt Co., who looks back on 30 years of serving mills.

• During the past 30 years, I have had the opportunity to observe the know-how and ingenuity of the men in the industry who have made its growth possible, and have had the privilege of helping them with some of their problems.

Of all the mill officials with whom I have worked, it is the paper mill superintendent who is constantly looking to me for felts that can help him produce more tons per day.

To our physical and chemical research laboratories, I bring many superintendents' problems, and the solutions may save thousands of dollars.

To understand a mill's problems relating to felts, it has been a lot of help to have a thorough knowledge of paper and its production. That's why I say: "Paper is my business, too." A good working knowledge of the equipment, and processes must be gained before felt requirements and functions can even be discussed. Most superintendents have found that the more they can tell me about their machines, the more service I can give them.

Occasionally, one will put me to the test, like the fellow who visited our Albany plant to leave some of his paper samples with our chief designer. Showing them to me, the latter said they were products of mills in another part of the country, but after one look I named the mill which had produced them. This was possible because of constant participation in that mill's production through discussion of its individual requirements and felt needs.

Things I have learned in one mill may help another. This is not the carrying of tales, but simply passing along helpful information about items that are available to the industry as a whole. Often a superintendent is interested in the opinions of a respected fellow superintendent on new equipment. Today, the progressive man visits other mills for this purpose, even his competitors, and bits of information I can give him may help him form a composite picture. Add to this the data that can be passed along that has been gained from our other sales engineers and service engineers working in the field throughout the industry, and we may help to speed up the process of finding important answers.

Another way a sales engineer can be of service is through watching for unusual usage of felts. It is our job to check inventories and see that safe levels are maintained, based on knowledge of time required for felt manufacture and delivery. Conditions on the machine causing unusual usage must be sought out and reasons for excessive wear pointed out and remedies suggested. Changes in operation must be known, with corresponding changes in felt design recommended often before the superintendent may realize such a need. If a problem is too complicated and a detailed study indicated, it's my job to call in a service engineer, the true "master mechanic" of our field force.

There are other instances where the mere endorsement of a superintendent's own opinion will help. Typical of this was the recent case of a man who had worked so long on a problem that his viewpoint was confused. By simply discussing and retracing the work he had done on the problem with him step by step, he suddenly discovered that he had found the answer in the process.

"MORE TONS PER DAY"—Lately, most mills have had the common objective of "more tons per day," regardless of the grades made. Actually, however they have expressed it, mill operators have meant "more saleable tons per day," since it does not profit a mill to make more tonnage if quality suffers. Therefore, when a mill starts thinking in terms of higher speed, to produce greater tonnage, it should carefully consider the necessary changes in machine conditions and clothing which must be made to assure quality as well as quantity.

Here again, a sales engineer can be helpful if given a chance. Hints given through knowledge of new machinery developments, as well as recommended changes in felt design can aid in efficiently attaining the objective.

Recently a mill desiring higher speeds installed new conditioning equipment and after discussing the installation with me, a lighter and more open felt was suggested and tried. As a result, they were gratified to find that their finish and quality had not suffered, although they gained 20% more speed and actually had more days of trouble-free operation on the felt. This would have been impossible under the old conditions, but the superintendent told me about the speed-up before it started, with the resulting smoothly-operating, highly profitable changeover.

Not that felts alone are the answer, for the best felt made will not produce the desired result if the problem is one of stock or machine conditions. As an example, take the problem of shadow marking in connection with the use of a suction press. Usually this marking can be reduced by the use of a felt having the proper bulk in relation to the density and weighting of the press roll. But the best felt obtainable will not eliminate marks caused by improper stock conditions or poor regulation of vacuum. Vacuum regulation must be made at various points on the machine, as well as at the offending press itself. The amount of vacuum at the press and suction couch affects shadow marking, with too little vacuum at these points often marking as well as too much. Slowness or freeness of stock also enters into the problem, although customers' specifications may leave the mill no choice in the matter. Yet, without a full knowledge of these conditions, no sales engineer could know whether or not a felt was or was not causing the defect.

Having mentioned freeness and slowness of stock, it is worth while to note that both these conditions require a felt that will quickly get rid of water, although for different reasons. In a situation like this, the sales engineer can help the superintendent by presenting facts to the felt company's design department, so that the desired result is clearly understood and the proper felt designed for the specific job required.

It is disturbing to me that some mills are reluctant to accept the help of sales engineers. In one such case, I finally persuaded a mill to let me make a survey. Eventually we were able to develop an outstanding felt for them, so they are making quality paper at higher speeds, with a felt cost saving of 25% per ton.

It is my hope that some day all mill superintendents will recognize sales engineers for what they are: Men devoted to the service of the paper industry.

Court Cuts Ground From Under State In Pollution Case

A certificate issued by the Mississippi State Game and Fish Commission covers only waters of the state exclusive of waters wholly landlocked and privately owned, the U.S. 5th Circuit Court of Appeals, in New Orleans, holds. A state certificate that waters were not being polluted by the Masonite Corp., Laurel, Miss., was not a legal bar to a private $31,400 suit for alleged pollution damages, the court ruled. Federal Court for south Mississippi had previously upheld Masonite, granting a summary judgment in its favor.

Scott Starts 3 Machines In 14 Months at Everett

Scott's third 195 in. trim high speed Yankee Fourdrinier tissue machine started up Feb. 11 at Everett, Wash., and was making acceptable paper within 4 hours.

In a period of just 14 months, Scott started up Nos. 1, 2 and 3 machines in the new mill, with bleached sulfite pulp in slurry form pumped from the adjacent Soundview Pulp Division.

Crews moved immediately across the aisle to start construction of No. 4, scheduled to start up before the end of 1955. No. 1 started up in Dec. 1953, No. 2 last summer. All four are built by Beloit according to Scott design. All are 195 in. trim.

New Saw Distributor Branch in South

Timberland Saw Co., Marshall, Texas, distributors in Southern states west of the Mississippi River for McCulloch Motors Corp. chain saw, has opened a branch at 516 East Washington St., North Little Rock, Ark. John Cacioppo is in charge. A similar office is in Alexandria, La., under Cyrus Cacioppo. A third brother, Carlos J. Cacioppo, is manager in Marshall.

Travel for Central National

MICHAEL LITTMAN (left) Paper export dept., Central National Corp., Commercial Div., is traveling in Central America to investigate paper export potentials there. PETER HARTIG (right) of same company returns to Europe in May. He recently completed a tour through Portugal, Spain, France, England, Germany, Italy, Greece, Yugoslavia, Turkey.

Alberta Mill Capacity

Location of Alberta's first pulp mill has been changed from Edson to Hinton, 73 miles west of there. Capacity of the mill, which will produce bleached sulfate pulp, has been increased from 300 to 400 tons daily.

Frank E. Ruben, head of North Canadian Oils, partner of St. Regis Paper Co. in this enterprise, recently conferred in Vancouver, B.C., with Howard Simons, consulting engineer for the project, and C. D. Schultz, whose forestry organization has made surveys of pulpwood. Justin McCarthy, chief engineer for St. Regis, also was in Vancouver in March.

Mr. Ruben said $10,000,000 would be spent on housing development and other facilities. A community of 1,500 to 2,000 persons is expected.

Crown's All-Time Record

V. C. Gault, general safety supervisor, Crown Zellerbach Corp., reports an all-time annual low of 191 disabling injuries in 1954. A frequency of 11.07 lost time accidents per million man hours worked was averaged by all divisions, lowest in the company's history.

Best 1954 safety record in CZ was achieved by the Carthage, N.Y., mill, with 2.79; second was West Linn, Ore., 5.99; and third, Western Waxed Paper, San Leandro, Calif., 5.99.

Represents Rice Barton; Heads Union Asbestos Division

JACK MOSS (left) is new Sales Engineer in the Middle West for Rice Barton Corp., as announced by Pres. Chas. S. Barton. Mr. Moss resides in Kalamazoo, and has been associated with the paper machinery field and the industry since 1935. He was born in Dayton, O., and graduated from Purdue in mech. eng., 1934.

FRANK B. KREIDER (right), is new Gen. Sales Mgr. of Fibrous Products Div., Union Asbestos & Rubber Co., Chicago, Ill., according to John F. Corcoran, V.P. of Sales. Native of Fairview, Pa., and graduate of Carnegie Tech, Mr. Kreider was former Gen. Sales Mgr. of Darling Valve & Mfg. He and family live in Bloomington, Ill.

"Aquapel"—New Chemical and Sizing Agent by Hercules

A new chemical for papermaking—"Aquapel"—which is said to react chemically with cellulose fibers to form a strong chemical bond resulting in a high resistance to water penetration was announced by Hercules Powder Co. during Paper Week in New York City.

The new sizing agent is said to be neither a resin nor a wax, but an alkyletene dimer, which can be added to paper stock at the size press, beater, calender box, coater or by spray application. Because of its reaction with the cellulose fibers, it is said only from 2 to 6 lbs. of the chemical is needed per ton of paper to obtain a very hard size. An advantage of the new agent is that it can be applied under either acid or alkaline conditions, and so can be used to size calcium carbonite filled pulp. It does not impart wet strength.

Application of "Aquapel" may be made with standard equipment in emulsified form at temperatures of 130 to 150° F., and no problem is expected in effecting "cures" in normal finishing and handling of paper stock.

Now KVP Co. is Official

KVP Co. is the new official name for the Kalamazoo Vegetable Parchment Co., Parchment, Mich., and Devon, Pa. (converting plant). The merger with Watervliet Paper Co. will make that a new KVP division, too. There is already a KVP Co. Ltd., Espanola, Ont., and KVP Co. of Texas, Houston (converting).

PULP & PAPER

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